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ABSTRACT

A study of the status of work-based learning in U.S. two-year colleges sought to determine the aggregate depth, scope, and quality of work-based learning. A census design was used to ascertain the scope of work-based learning, through a mailed survey of 1,036 U.S. two-year colleges (nearly 50 percent response rate). Results of the study indicate that work-based learning experiences are occurring at the colleges, although these experiences are from limited curriculum and program areas. An average of 18 percent of students in vocational education were taking part in work-based learning at the time of the survey in most of the responding institutions. In addition, approximately one-quarter of the respondents estimated that a majority of students involved in customized or contract training were also participating in work-based learning. More than 60 programs were identified in which work-based learning was a required component. Most of these programs were in the health and business fields, and nursing was the only program that almost always required work-based learning. Work-based learning was rarely required in manufacturing and high technology programs. The programs found a tendency for programs to gravitate toward particular work-based learning models such as the following: professional and clinical, cooperative, school-based enterprise, and traditional adult or youth apprenticeship. The research showed how some components of the programs related to the federal School-to-Work Opportunities (STWO) legislation, although few of the programs included all of the required components. The study also found that the colleges themselves assumed responsibility for most of the program components: curriculum, instruction, student selection, and selection of workplace mentors and coaches. Support for the programs was greatest among groups with the most to gain, such as business and industry representatives; less support was seen from parents and four-year colleges. The results also indicated that the programs' greatest problems were lack of resources and lack of involvement from the business community. Recommendations were made for more fiscal resources, more incentives for businesses to join work-based learning partnerships, and clearer standards from the state and federal governments. (The report includes the questionnaire with aggregated responses listed. Contains 23 references.) (KC)

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National Center for Research in
Vocational Education

University of California, Berkeley

WORK-BASED LEARNING IN TWO-YEAR COLLEGES IN THE UNITED STATES

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WORK-BASED LEARNING IN TWO-YEAR COLLEGES IN THE UNITED STATES

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Finally, several others have helped to create this final report and we cannot forget their contributions. We are grateful to James Layton for his assistance with statistical

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Reflecting over the past two years, we cannot deny the struggles encountered as we attempted to study an ill-defined, emerging educational innovation such as work-based learning. However, we will also not quickly forget the sense of accomplishment this project has given us. We are proud of our efforts and thank all who shared in the experience with us.

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EXECUTIVE SUMMARY

Competition in the world economic marketplace is being fought in the arena of human resources. Countries with education and training systems that provide highly skilled workers have a powerful advantage and America, seeking that advantage, is evaluating her own public and private education systems to determine their state of readiness. Secondary and postsecondary schools are being assessed, and new and heavy expectations are being levied. The expectations set for schools, the sum of which is to lift human resource preparation to the ranks of the world's best, include a variety of plans and programs at the local, state, and federal levels. Two-year colleges are an undeniably vital part of the nation's educational system; therefore, it is important to better understand the role they play in future workforce preparation efforts.

This report documents the first of two studies on the status of work-based learning in America's community, junior, and technical colleges, referred to as "two-year colleges" throughout this report. The intent of this first study was to determine the aggregate depth, scope, and quality of work-based learning in the nation's two-year colleges. The timing of this research just prior to passage of the federal School-To-Work Opportunities (STWO) legislation provides a baseline from which progress on implementation of new work-based learning programs involving two-year postsecondary education can be assessed. The overarching goal, as STWO legislation overlays the nation's educational system, is to learn if America has or may soon have in place the structures to meet new federal STWO directives.

With this study, a census design was used to ascertain the scope of work-based learning occurring nationwide. Among other questions, we asked how many programs have a mandated work-based learning component? How many students actively participate in learning that happens in the workplace? What models are being employed? What barriers preclude the growth of work-based learning in two-year colleges? In order to focus the study, a definition of work-based learning was provided along with a list of the most frequently used models (e.g., professional/clinical and cooperative education). By work-based learning (WBL) we mean

> instructional programs that deliberately use the workplace as a site for student learning. WBL programs are formal, structured, and strategically organized by instructional staff, employers, and sometimes other groups to link learning in the workplace to students' college-based learning

> experiences. WBL programs have formal instructional plans that directly relate students' WBL activities to their career goals. These WBL experiences are usually but not always college-credit generating. Instructional programs that involve youth apprenticeships, clinical experiences, school-based enterprises, and formal registered apprenticeships are examples of WBL programs.

Additionally, colleges were provided the opportunity to nominate their best work-based learning programs in the health and nonhealth curriculum areas. Of a total population of 1,036 U.S. two-year colleges, a response rate of nearly 50% was obtained. A final data set containing 454 cases provided the basis for this report.

Scope of Work-Based Learning

Results indicate that approximately nine months *prior* to passage of the federal STWO legislation, many two-year colleges were engaging students in work-based learning experiences, although these experiences were from limited curriculum and program areas. An average of 18% of students in occupational-technical (vocational) education were estimated to take part in work-based learning in the vast majority of responding institutions. In addition, approximately one-quarter of the respondents estimated that a majority of students (55%) involved in customized or contract training were also participating in work-based learning. This result confirms the increasingly important role two-year colleges are playing in delivering customized education experiences at the worksite (Jacobs & Bragg, 1994). Hence, the two areas of vocational education and customized training appear to provide the preponderance of work-based learning for students in U.S. two-year colleges. Other major curriculum areas such as transfer and liberal studies, developmental education, and continuing or community education showed evidence of work-based learning but were much less likely to employ such models on a wide scale.

Nationally, several programs/disciplines were identified where work-based learning was a *required* component of a student's program of study. We identified more then 60. However, although work-based learning was documented in a wide array of programs, it was not found on any great scale except within a few of the programs. Among these, the health (e.g., nursing, radiologic technology, respiratory therapy) and business (e.g., office management, business administration, marketing) curriculum areas were predominant. In fact, nursing was the only program area to require work-based learning by the majority of responding institutions. Conspicuously absent from the list of top programs requiring

work-based learning were those linked to manufacturing and high tech programs including computer-aided design and drafting, electronics and electrical technology, information processing, mechanical design, metalworking/tool and die making, environmental technology, microcomputers, quality control, and telecommunications. This discovery is of some disappointment as these sorts of programs seem critical to the manufacturing and service industries and work-based learning would appear to enhance students' understanding of occupations associated with them. However, many factors are likely contributors to this phenomenon including the nation's past economic difficulties, changes in the ways manufacturers and service industries utilize workers, and a lack of awareness about work-based learning among these industries. Within two-year colleges, competing internal priorities linked to diminishing resources is another likely factor.

Characteristics of "Best" Health and Nonhealth Programs

Two key sections of the questionnaire asked respondents to nominate their best health and nonhealth programs based on the following four criteria: (1) *formal structure* which sought programs that had formal instructional plans that deliberately linked the workplace with students' college-based learning experiences; (2) *fully operational* which meant that faculty, employers, and other organizations were formally committed to carrying out work-based learning for students; (3) a *proven track record* which required a stream of program completers known to have reached their academic and career goals; and (4) *innovative approaches* evidenced by use of new and creative strategies in curriculum and instruction, program administration, or partnerships with business, industry, and labor. Based on these criteria, the following ten program areas were nominated most frequently:

1. Nursing (LPN, RN, & ADN) (220 nominations)
2. Nurse assistant (82)
3. Business and occupations (41)
4. Auto technologies (34)
5. Engineering technologies - various (24)
6. Radiologic technology (22)
7. Cooperative education and cooperative work experience (21)
8. Agricultural-related programs - various (20)
9. Early childhood education and child development (18)
10. Trades, including traditional adult apprenticeships in carpentry, electronics (17)

Together, the nursing and nurse assistant program areas accounted for 76% of the 399 nominations received regarding health work-based learning programs. A total of 322 nominations were received for nonhealth programs and the area of business and office technology topped the list with 41 nominations. An examination of the characteristics of the nominated programs indicated that most were first implemented between 1961 and 1980 making them at least 14 years old. Health programs tended to be older than nonhealth programs. Regardless, the results demonstrate that work-based learning is not a new phenomenon but one that has existed for quite a long time in two-year colleges. Results also indicate that health programs tend to place students in medium-sized firms of less than 500 employees while nonhealth programs tend to place students in smaller companies of 100 employees or less. The number of students enrolled in either type of program was similar, with nonhealth programs having slightly higher enrollments, on average. Health programs enrolled an average of 144 students, and nonhealth programs enrolled an average of 163 students per program.

Interestingly, the number of faculty involved in these programs differed more dramatically than the student enrollments. Health programs had an average of 14 faculty equally divided between full-time and part-time status. Nonhealth programs had half that number with an average of only three full-time and four part-time faculty. This difference becomes dramatic when combined with the following results showing the average number of hours students spent in work-based learning: health—741 hours; nonhealth—770 hours. This apparent inequity suggests that nonhealth programs may be under-resourced in their support for work-based learning relative to health programs. This raises the question of how many faculty are needed to operate a successful work-based learning program. Certainly health programs are operating under the approval of any number of professional (frequently sanctioning) organizations and legal mandates which help to control for favorable student/faculty ratios. Could such organizations have a similar impact on nonhealth programs, possibly brought about by efforts to establish national skills standards? Learning more about the quality of student experiences—a focus of our second work-based learning study—is vital to making informed policy recommendations on workable and efficacious student/faculty ratios.

Also evident from findings is the tendency for health and nonhealth programs to gravitate toward particular work-based learning models such as the following: professional/clinical, cooperative (co-op), school-based enterprise, traditional (formal

adult) apprenticeship, or youth apprenticeship. Nearly all of the nominated health work-based learning programs were identified as using the professional/clinical model (97%). In contrast, nonhealth programs typically utilized the co-op model (64%). The remaining nonhealth programs usually reported using either the professional/clinical or "other" model, often described as internships and described similarly to co-op. Models such as traditional apprenticeship, school-based enterprise, and youth apprenticeship were rarely utilized by any of the nominated programs—health or nonhealth. In addition, few programs were identified as utilizing Tech Prep funds or providing formal articulation agreements with secondary schools, a key feature of the Tech Prep model.

Results from the study reveal how specific components related to the federal STWO legislation were employed by programs associated with the particular work-based learning models. Overall, the two models of traditional apprenticeship and youth apprenticeship had implemented the greatest percentage of the twenty-two selected STW components under investigation in this study. This finding is not particularly surprising since initially the STWO legislation was based on an apprenticeship model with at least one early version of the federal bill containing the term "youth apprenticeship" in the title. Nonetheless, it is important to note that these models most closely paralleled the specifications of the STWO legislation. At the same time we must reiterate that programs associated with the traditional or youth apprenticeship models received very few nominations as two-year colleges' "best" work-based learning programs. When they were nominated, few students were shown to be participating in these programs. Moreover, little evaluative data was provided to indicate the efficacy of these programs. Therefore, while the apprenticeship models may contain more of the components of federal policy than other models, their generalizability to the nation's two-year college system appears problematic at this time.

Furthermore, we examined how programs associated with each of the work-based learning models fit with various school-based, work-based, and connecting components mentioned in the federal STWO law. We concluded that few of the models uniformly incorporated such key components as training and credentialing of workplace mentors, inservice of college faculty and staff in work-based learning concepts, formal articulation agreements with secondary schools, and incentives for business. Often, other components such as recruitment of targeted student groups and job placement were lacking as well. Does the fact that colleges' "best" programs lacked such components suggest they are not essential to a successful work-based learning program? This question cannot be answered

without more detailed information about work-based learning programs and the ways particular components associated with them contribute to student outcomes.

When examining who has primary responsibility for the components associated with work-based learning (i.e., colleges, employers, or other agencies), we learned that colleges have primary responsibility for nearly all school-based, work-based, or connecting components. These responsibilities include the following:

- delivery of instruction
- curriculum development
- student selection
- providing special assistance to students
- certifying students
- selecting workplace mentors
- training of mentors/coaches
- providing insurance

College health programs were reported to have the primary responsibility for nearly every facet of work-based learning, including selecting, instructing, mentoring, assessing, and certifying students. Nonhealth programs were similarly responsible for the vast majority of components, except for the areas of supervising and evaluating students where the responsibility was shared with employers. These results indicate that although some student learning takes place in the workplace, the primary responsibility for the learning process remains that of the colleges rather than employers or other agencies. This suggests deficits in existing work-based learning practices, especially with the role of the worksite and activities connecting the colleges and employers. Clearly, with some exceptions, two-year colleges are expected to take charge of the development and operation of work-based learning, leading us to pose the following several questions: If more students are to participate in work-based learning, how can colleges manage increased demands on personnel and fiscal resources? What incentives could be provided to encourage employers or other groups to play a more pivotal role? and If responsibilities are delegated, what ones should be undertaken by employers or other agencies? Additional research is needed to address these questions. Obviously, for more students to engage in work-based learning, a greater sharing of responsibility must occur among colleges, employers, and other agencies. If this sharing does not occur, colleges will need to develop work-based learning

experiences that require fewer resources. Whether alternatives can be employed that can provide equivalent learning experiences is another important question that must be addressed.

Support for Work-Based Learning

When asked to reflect on past experiences with work-based learning, respondents perceived that the highest level of support came from stakeholder groups such as advisory boards, business/industry representatives, state licensing agencies, and college administrators—all groups with something to gain. In contrast, groups that may have perceived work-based learning as a poor alternative to traditional curricula or even as a threat to their own goals (i.e., parents, labor, four-year schools) were least supportive. Not surprisingly, work-based learning as an alternative pedagogical delivery mode may be stigmatized with the same poor image that vocational education carries in general and this stigma may be contributing to the lack of support by some groups.

Results also indicate that too few resources (time, people, and funding) and too little active involvement, especially from business and industry, were perceived to be the most serious barriers to initiating more work-based learning in two-year colleges. Therefore, while respondents saw many stakeholder groups as supportive of the concept of work-based learning, they viewed some of these groups as making too few contributions to the cause. Obstacles having a moderate or minor level of impact included cooperation with other institutional partners and labor; a lack of faculty interest in and knowledge about work-based learning, and curriculum-related issues such as a lack of integrated occupational and technical education and lack of focus on careers. These findings suggest internal and external concerns are intermingled, with issues on each side influencing the other. Until these barriers are addressed, it seems unlikely that work-based learning will grow substantially within two-year colleges or across the nation's system of postsecondary education. At the least, new and affordable approaches should be explored if the concept is to flourish on a wider scale.

Work-Based Learning Policy Recommendations

Finally, respondents were asked to provide recommendations for how local, state, or federal governments could develop policy to assist with the growth of work-based learning. Without exception, the suggestions provided by respondents were supported by

other results. The recommendations sought more fiscal resources for two-year colleges; more incentives for businesses to join work-based learning partnerships; increased promotion of work-based learning, particularly to business and parents; clearer standards and guidelines emanating from the state and federal levels; and more support from local, state, and federal agencies as well as professional associations. It is our belief that policymakers at all levels should seriously consider the advice of the two-year college practitioners responding to our survey, a group already experienced in delivering work-based learning and likely to understand issues surrounding its expansion.

Phase Two of the Work-Based Learning Study

Using the data gathered from phase one, eight two-year colleges were identified for further in-depth study. Work-based learning programs in these eight colleges were selected because they were thought to exemplify formal structure and commitment to work-based learning by various stakeholder groups, have a proven track record of student success, and represent innovative practices. During the fall of 1994, research teams have visited these colleges and, using a structured interview (qualitative) procedure, gathered relevant data regarding program quality. Currently the teams are synthesizing this information and producing a second report documenting the activities required to initiate and operate two-year college work-based learning programs. This report will be available in the spring of 1995.

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EMERGING WORK-BASED LEARNING POLICIES AND PRACTICES

The decline in American competitiveness is increasingly linked to inadequacies in human resources, including a lack of preparedness among entrants into the workforce. According to the Secretary's Commission on Achieving Necessary Skills (SCANS) (1991), too few new employees enter the labor market with the skills needed to fill jobs requiring technical sophistication. Nor do these prospective workers seem ready or sometimes capable of learning these skills (Carnevale, Gainer, & Meltzer 1990). This same situation does not seem as serious for many of America's foreign competitors. Investigations of technical training systems in countries such as Germany and Sweden reveal that well-developed work-based learning systems can and frequently do facilitate school-to-work transition (Nothdurft, 1989).

Researchers (e.g., see, Rosenbaum, 1992; Stern, 1992; Stone & Wonser, 1990) find the need to strengthen the transition between school and employment but caution that a range of transition mechanisms will be necessary to meet the needs of America's diverse population. Models such as cooperative education (co-op), youth apprenticeship, school-based enterprise (SBE), traditional adult apprenticeship, and Tech Prep represent approaches to providing school-to-work transition. However, these models differ dramatically in their methods, maturity, and effectiveness (Stern, Finkelstein, Stone, Latting, & Dornsife, 1994). For example, co-op, a model that has been implemented widely over most of the century, has shown mixed results. Students who have been fortunate enough to obtain jobs after high school or two-year college with their co-op employers have obtained higher earnings; those who have not found such employment have faired no better than students who did not have co-op experience at all. In addition, two-year colleges have actively engaged in delivering traditional adult apprenticeships, especially in the areas of manufacturing and the trades; however, the partnerships bolstering these programs have been tenuous (Casner-Lotto, 1988) and benefits to the colleges and students have been uneven. Unfortunately, little is known about youth apprenticeship, school-based enterprises, or Tech Prep, some of the school-to-work models advocated most enthusiastically today.

In Germany and Denmark, various forms of apprenticeship are used to reduce the distance between school and work as educators and employers share responsibility for work-based learning (Hamilton, 1990). In addition, the comparably high cost of work-

based learning is shared by government and business, and each perceives the contribution as an investment in the economic well-being of the country. In America, the situation differs significantly, often leaving youth to fend for themselves in bridging the gulf between a high school or college education and the workplace, creating a costly and ineffective situation for individuals, firms, and the nation as a whole. However, in recent years, concern about the school-to-work transition gap has culminated in new federal policy supporting wide scale application of the work-based learning and school-to-work connecting concepts.

On May 4, 1994, President Clinton signed the School-To-Work Opportunities (STWO) Act. Together, STWO and the Goals 2000: Educate America Act, passed in March 1994, promote systemic educational reform nationwide to improve the quality of teaching and learning in the classroom and workplace. The STWO Act brings experiential, work-based learning forward to play a central role in educational reform. Although separate from the federal vocational education law (Perkins II and the Tech Prep Education Act), this legislation endorses a role for work-oriented education in the nation's reform agenda. A primary goal of the STWO Act is to establish a national framework to encourage states to plan and implement statewide school-to-work systems that can assist youth to identify and obtain rewarding work after completing secondary or postsecondary education. The rationale for the STWO legislation is defined as follows:

> The need for increasing the skill level of the American labor force and the job readiness of American high school graduates is widely perceived as vital to the health and continued growth of the U.S. economy. About 50 percent of youth in the United States do not go to college, and only about 20 percent of all U.S. youth get a 4-year college degree. By the year 2000, 52 percent of jobs will require more than a high school diploma, but less than a college degree. However, employers have found that U.S. youth—both school dropouts and high school graduates—are ill prepared to meet employer requirements for entry-level positions. (Training Technology Resource Center, 1994, p. 1)

No one model is endorsed by the STWO legislation; rather, localities and states are encouraged to explore alternative approaches such as cooperative education (co-op), youth apprenticeship, and Tech Prep. Successful completion of a school-to-work program is expected to result in a high school diploma, a certificate or degree from a postsecondary institution, or an occupational skill certificate: "The skill certificate will be a portable, industry-recognized credential that certifies competency and mastery of specific occupational skills" (U.S. Department of Education & U.S. Department of Labor, 1993, p.

2). No matter the model chosen, any school-to-work program should strengthen relationships between the following groups: (1) vocational and academic education, (2) educators and employers, and (3) secondary and postsecondary education.

Three components form the foundation of educational systems (and programs) congruent with the STWO Act: (1) a work-based component, (2) a school-based component, and (3) a connecting component (i.e., activities that connect school and work). These three components are essential to a school-to-work system. The school-based learning component requires career exploration and counseling, instruction in a particular career area, selection of a career major by eleventh grade, and periodic evaluations linked to academic standards specified in the Goals 2000: Educate America Act. In addition, the school-based component encourages linkages with postsecondary education in a way similar to but not as explicit as the formal 2+2 articulation requirements of the federal Tech Prep Education Act. The work-based learning component involves paid or unpaid work experience, workplace mentoring, and instruction in general workplace competencies as well as in all aspects of the industry. Through work-based learning, students should acquire progressively higher-level skills consistent with the demands of a particular occupation. Finally, the school-to-work connecting component is designed to ease the transition from in-school to out-of-school learning, ensuring a match between students' interests and competencies and employers' work-based learning opportunities. Examples of school-to-work connecting activities are support services such as career counseling, professional development of school/college faculty and workplace mentors, and job placement.

The Role of Two-Year Colleges in School-To-Work Transition

Two-year colleges have a long and rich tradition of offering occupational-technical education programs for America's youth and adults. Particularly since the late 1960s and early 1970s, a primary function of all types of two-year colleges (junior, community, and technical) has been delivery of career-oriented vocational and technical education (Cohen & Brawer, 1989). Increased emphasis on the postsecondary level by federal vocational education legislation, changing demographics, greater demand by business and industry, and related transformations in the ways firms and labor markets operate are some of many factors that have influenced growth in two-year college occupational-technical education.

The U.S. General Accounting Office (1993) estimated that in academic year 1990-1991, 93% of all two-year colleges offered an average of 27 vocational programs; nationwide, approximately 43% of students in these colleges were enrolled in these programs. Results from the National Assessment of Vocational Education (1994a) interim report describe vocational education as being "stronger at the postsecondary than at the secondary level" (p. xiii). In summarizing the major findings of the study, NAVE (1994b) made the following statement pointing to the strengths of postsecondary vocational education:

> Postsecondary vocational programs provide more structure than their secondary counterparts for students working toward a degree. . . . The economic outcomes for postsecondary vocational students are better than for secondary students. Postsecondary completers are more likely to find jobs related to their training, and even some coursetaking without completing a program seems to confer labor market benefits. These advantages of postsecondary vocational education seem to be most pronounced in public community colleges. (pp. 17-18)

Beyond the emphasis on career-oriented programs for their own students, two-year colleges are increasingly viewed as necessary partners in school-to-work related educational reforms beginning at the high school level. Initiatives such as Tech Prep and youth apprenticeship implicitly or explicitly describe a role for two-year colleges to assist the transition of high school youth to postsecondary education and to help them acquire the more advanced technical and academic competencies needed for entry into the labor market. Although the involvement of two-year colleges has not fully developed with these school-to-work reforms (Bragg, Layton, & Hammons, 1994; Kazis, 1993; NAVE, 1994b), public policy encourages—mandates in the case of federal Tech Prep education legislation—that two-year colleges play a pivotal role in school-to-work reform.

Besides the newer school-to-work models, older, more established work-based learning models such as co-op and traditional adult apprenticeship are already firmly planted in many of the nation's two-year colleges (Stern et al., 1994), offering other means for two-year colleges to contribute to the nation's school-to-work agenda. In addition, many of America's two-year colleges demonstrate experience in partnering with private-sector firms to deliver related programs and services such as customized or contract training; entrepreneurial training and small business development; and technology transfer. The education-business partnerships of two-year colleges that have provided the basis for the diverse array of educational programs focused on workforce preparation may also

contribute in significant ways to newer school-to-work and work-based learning programs as well.

What role should America's two-year colleges play in work-based learning, especially considering new secondary to postsecondary articulated initiatives such as Tech Prep and youth apprenticeship? Can effective American-style work-based learning systems be designed without some involvement by two-year colleges, especially considering the increasingly prominent role two-year colleges play in educating America's beyond-high school, nontraditional population? Although recent studies address the scope and quality of postsecondary vocational education programs, little is known about the work-based learning component that may be associated with these programs. Little information exists about work-based learning in two-year colleges, except possibly for programs associated with the health-care industry. Because of the dearth of information about work-based learning in two-year colleges and the rising interest in such programs, a national study was undertaken to assimilate knowledge on this subject and assist policymakers and practitioners in the design of future work-based learning programs.

Purpose of the Study

This study was designed to document the status of work-based learning in U.S. two-year colleges. The study occurred prior to passage of the federal School-To-Work Opportunities (STWO) legislation, so it provides a baseline from which progress on implementation of new school-to-work programs can be assessed. Prior to passage of the federal STWO legislation, little research existed regarding the nature of work-based learning in U.S. two-year colleges, creating a need to describe the scope and character of work-based learning offered by these institutions. Given that, the primary objective of the study was to describe the status of work-based learning across all curricula of U.S. two-year colleges. The following specific areas were examined in this study:

- The scope of work-based learning
- The characteristics of "best" health work-based learning programs
- The characteristics of "best" other work-based learning programs
- Support for work-based learning
- Institutional characteristics
- Work-based learning policy recommendations

RESEARCH METHODS

To address the primary research objective of this study, survey research design was conducted. Data was collected with a mail questionnaire completed by respondents from U.S. two-year colleges. This section of the study presents a discussion of the population for the study, the data collection instrument and procedures, and the approaches taken to analyze the data.

The Population and Survey Response Rate

The study attempted a census of all two-year colleges (junior, technical, and community) in the United States as of September 1, 1993. The census design was used to ascertain the scope of work-based learning occurring nationwide as well as to give all U.S. two-year colleges the opportunity to nominate their "best" work-based learning programs. The sampling frame for the study was obtained from three sets of mailing labels totaling 1,036 names of two-year college presidents from the American Association of Community Colleges (AACC). On September 3, 1993, mail questionnaires were sent to each of 1,036 two-year college presidents in the United States. Following multiple follow-up procedures (explained further in the section on "Questionnaire Administration"), a total of 505 surveys were returned as of December 31, 1993, for a response rate of 48.7%. Of these, 51 were not usable because they were blank—usually with the comment that the college did not have a work-based learning program—or they were only partially completed, again because the college indicated it did not have a work-based learning program. Consequently, the final version of the data set contained 454 cases.[1]

The following perspective, shared by Dr. Ellen Dran (1994) of the Northern Illinois University Center for Governmental Studies, the organization subcontracted to carry out administration of the questionnaire, is helpful in understanding the response rate for this study:

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[1] A detailed description of the data collection procedures was provided by Dr. Ellen Dran of the Center for Governmental Studies at Northern Illinois University. For further information about these procedures, contact the authors of the studies for a copy of the *Survey on Work-Based Learning in the Two-Year College Technical Report* (1994) prepared by Dr. Dran.

> The 49% response rate for this study should be considered successful. Schools are heavily surveyed and to get 505 colleges to respond to such a long questionnaire is difficult. Also, based on the [telephone] calls we made to nonrespondents and calls by some colleges to us, we suspect that some of the nonrespondents did not have WBL programs and therefore did not think it necessary to return the questionnaire. . . . Probably the most important cause of nonresponse was the fact that the questionnaires were sent to each institution's president, asking that they be forwarded to the appropriate office. Based on our chaser phone calls, it appears that many of the questionnaires were "lost" in the presidents' offices. . . . Finally, comments over the telephone and on the questionnaires themselves indicated that the length of the survey and confusion about terms (especially duplicated and unduplicated head counts) were intimidating and probably contributed to nonresponse. Also, some schools apparently counted themselves out because they did not think their programs met the criterion of using "new and creative strategies" as indicated on pages 3 and 7 of the questionnaire. (Dran, 1994, pp. 1-2)

Since the survey attempted a census, and since there were not that many questionnaires returned as partially completed, it was not possible to compare results for colleges with and without work-based learning. Consequently, the extent to which results can be generalized to the entire population of U.S. two-year colleges is unknown. Unfortunately, neither our project staff, the panel of experts, nor the practitioners involved in the pilot test anticipated that a sizable proportion of two-year colleges might have few or no work-based learning programs, contributing to a substantial pattern of nonresponse. Had this pattern been anticipated, the researchers might have elected to undertake a stratified, random sample of all U.S. two-year colleges to enhance results pertaining to scope of work-based learning activities. As it was, the study contributed to an extremely rich database portraying self-nominated work-based learning programs from two-year colleges throughout the United States.

Questionnaire Development

A mail questionnaire was developed for this study based largely on information collected via previous library, survey, and field-based research conducted by the authors. The questionnaire asked a respondent designated by each college to provide information in the following areas: (1) the scope of work-based learning occurring across the college's curriculum, (2) the characteristics of the college's "best" work-based learning program in a health-related area, (3) the characteristics of the college's "best" work-based learning program in a nonhealth area, (4) the level of support for work-based learning from various stakeholder groups, (5) the general characteristics of the institution, and (6) policy

recommendations to help foster additional work-based learning in the two-year college environment (see Figure 1).

Figure 1
Summary of Work-Based Learning in the Two-Year College Questionnaire Sections and Items.

Questionnaire Parts	Items
Part One: Scope of Work-Based Learning	• Institutional head count enrollment • Enrollment and estimated number of students in work-based learning by major curriculum area • Occupational and academic programs which required work-based learning
Part Two: Health Work-Based Learning Program	• Name of "best" health work-based learning program • Qualities of the program • Year first implemented • Number of students in FY93 • Approximate number of hours in workplace • Approximate number of full- and part-time faculty • Percent of health-care providers participating in program were small, medium-sized, or large • Whether formally part of Tech Prep • Type of work-based model used • Program components used • Location of primary responsibility for program components
Part Three: Other Work-Based Learning Program	• Name of "best" nonhealth work-based learning program • Qualities of the program • Year first implemented • Number of students in FY93 • Approximate number of hours in workplace • Approximate number of full- and part-time faculty

Figure 1 cont.

Questionnaire Parts	Items
Part Three: Other Work-Based Learning Program (cont.)	• Percent of employers participating in program were small, medium-sized, or large • Whether formally part of Tech Prep • Type of work-based model used • Program components used • Location of primary responsibility for program components
Part Four: Support for Work-Based Learning	• Barriers to the growth of work-based learning • Level of support for work-based learning programs
Part Five: Institutional Characteristics	• FTE enrollment for FY93 • Whether enrollment is increasing, remaining stable, or decreasing • Number of full-time faculty in FY93 • Approximate number of part-time faculty in the fall term of FY92 • Percentage of students enrolled in transfer, occupational, or adult curriculum • Whether financial resources are increasing, stable, or decreasing • Whether the college community environment is rural or small town, suburban, or urban
Part Six: Work-Based Learning Policy Recommendations	• Recommend ways that local, state, or federal governments could encourage growth of work-based learning programs.

In the two sections of the survey that asked respondents to describe their "best" programs, the following criteria were designated: (1) a formal structure linking work-based and college-based learning; (2) a proven track record based on existing evaluation data; (3) a fully operational program with evidence of commitment by the college and local employers; and (4) the existence of new and creative strategies in any of the areas of

curriculum and instruction, program administration, and/or partnerships between education, business, labor, or other organizations. (See Appendix for a copy of the mail survey instrument.)

Validity

To ensure the content validity of the instrument, a panel of experts reviewed a draft of the instrument. Based on feedback from this panel, the questionnaire was revised and disseminated to approximately twenty members of the National Council for Occupational Education (NCOE) advisory board for a pilot test. Several relatively minor modifications were made to the mail questionnaire based on feedback received from these individuals, including rewording questions or response categories. One major change based on the group's feedback was to ask for nominations of programs the respondent institutions considered "best" separately for the health and nonhealth curriculum areas. This modification was made because of concerns raised about two-year colleges' nominations being predominantly in a health field, specifically in nursing or nursing-related occupations. By creating both a health and nonhealth section, we could ensure that results would be obtained on programs in nonhealth curriculum areas, an important consideration because of the intent of this study to cross two-year college curricula (i.e., transfer, occupational-technical, and so forth.)

Reliability

The Cronbach's alpha reliability coefficient was calculated for the two subscales used in the survey. Regarding the first of the two subscales, respondents were asked to indicate the extent to which twenty barriers could slow the growth of work-based learning in their own college. A six-point scale was used to indicate the impact of growth on work-based learning, ranging from *none* (1) to *very major* (6). The Cronbach's alpha for this subscale was .94. This indicates that the subscale of barriers to work-based learning was highly reliable.

The second subscale focused on the level of support for work-based learning currently being received from fourteen groups (i.e., stakeholder groups), although that particular language was not used in the questionnaire so as to not confuse respondents with potentially unfamiliar terms. Respondents were asked to indicate if the level of support was *poor* (1), *fair* (2), *good* (3), *excellent* (4), and *not applicable* (9). The Cronbach's alpha for this subscale was .92. Again, the subscale provided highly reliable indicators of the level of support of various groups toward work-based learning.

Questionnaire Administration

Administration of the mail questionnaire occurred in several phases based on a modified version of the total survey design method of Dillman (1979). First, the questionnaire, a cover letter, and a pre-addressed, stamped envelope were mailed on September 3, 1993, to the total sample of 1,036 two-year colleges. At that time, each college president was given the following instructions: "Your college has been selected to be part of our study. We ask your assistance in getting the questionnaire to the person in your institution who is most knowledgeable about work-based learning programs in operation during the 1993 fiscal year. Often that person is the occupational dean, but not always." The presidents were given contact names and phone numbers if they had questions about who to select to complete the questionnaire. Respondents were asked to complete the instrument and return it by September 24, 1993.

On September 13, a postcard was mailed to all nonresponding colleges. On September 20, chaser telephone calls began to a subsample of nonrespondents, asking them to complete and return the survey. By the conclusion of the data collection period, 666 schools were contacted with these chaser calls. On October 6 and 7, a second copy of the questionnaire, a cover letter, and pre-addressed and stamped envelope were mailed to nonrespondents. A total of 732 questionnaires were mailed during this phase of the data collection process. Additional questionnaires were mailed when requested. All questionnaires received through December 31, 1993, were included in the analysis of data for this project. Again, 454 usable questionnaires resulted from this process and provided the basis for findings presented in this report.

Data Coding and Analysis

Data obtained from this study were coded and entered into a spreadsheet package and analyzed with Statistical Package for the Social Sciences (SPSS) for the Macintosh. Coding of closed-ended items was relatively straightforward, usually following the responses on the questionnaire itself. However, Parts Two and Three of the survey where respondents were asked to identify a work-based learning program that met specified criteria required more extensive coding. For these sections, the inventory of the *Dictionary of Occupational Titles* (*DOT*) was used to categorize nominated work-based learning programs in health and nonhealth areas. In some cases, similar *DOT* codes were combined

to create larger categories; however, where possible, the original *DOT* codes were used to classify programs. Based on the *DOT* coding scheme, we were able to identify 21 separate types of health programs and 29 separate types of nonhealth or "other" programs.

Other open-ended questions such as the ones found in Parts Two and Three and the question asking for respondents to provide policy recommendations in Part Six were content analyzed. The procedure used was an inductive content analysis (Guba & Lincoln, 1985; Patton, 1980). In this process members of the project staff read and reread the open-ended responses independently to identify major themes thought to portray the data in a meaningful and comprehensive way. In cases where themes were coded and classified differently by the project staff, discrepancies were reviewed and consensus was reached on the themes, classification scheme, and labels used to represent the data.

Finally, it is important to point out that, as would be expected with a relatively large dataset such as this one, there were deviations in response rates to the various sections and items of the survey. To be able to use as many questionnaires as possible for the statistical analysis, we included a very large percentage of all of the questionnaires returned by respondents. This decision resulted in the inclusion of some questionnaires that contained varying amounts of missing data. Consequently, throughout the findings and discussion section of this report, when the number of respondents varied substantially from the number in the total sample of 454 cases, that number is reported for tables and/or cells. The Appendix provides aggregated responses to the entire survey on an item-by-item basis.

FINDINGS AND DISCUSSION

This section of the report provides a discussion of the survey results according to the major sections of the questionnaire beginning with institutional characteristics (Part Six). Then, findings regarding the scope of work-based learning (Part One) are presented followed by a description of health and nonhealth programs (Parts Two and Three) that colleges nominated as indicative of their colleges' "best" work-based learning programs. Next, results from Part Four of the survey are discussed in relation to the barriers to growth of work-based learning and level of support for such programs from various stakeholder groups. Finally, respondents' recommendations for ways local, state, and federal governments could encourage the growth of work-based learning are presented.

Institutional Characteristics of Responding Two-Year Colleges

A series of questions sought to identify the characteristics of the two-year colleges responding to the survey instrument. The intent of the questions was to identify characteristics of two-year colleges in the United States that operate work-based learning programs in order to provide a context for interpreting all other survey results. Information concerning the size of the responding institutions was sought by asking for an institution's total head-count enrollment for fiscal year 1993 (FY93) as well as full-time equivalent (FTE) enrollment for FY93. Table 1 portrays the head-count enrollment patterns of the responding colleges.

Table 1
Student Head-Count Enrollment of Two-Year Colleges (FY93)

Head-Count Enrollment by 1,000s	Number of Colleges	Percent of Colleges
Up to 4,000	127	32%
4,001 to 8,000	77	19
8,001 to 12,000	62	16
12,001 to 16,000	29	7
16,001 to 20,000	23	6
20,001 to 24,000	20	5
24,001 to 28,000	14	4
28,001 to 32,000	12	3
32,001 to 36,000	5	1
36,001 to 40,000	4	1
36,001 to 44,000	5	1
44,001 & over	13	3

n = 430

Results show that approximately 50% of the colleges had enrollments of less than 8,000 head-count. Approximately one-half of the responding colleges identified themselves as being in rural or small town community environments which corresponds with the smaller size of the colleges reported in Table 1 and also in Table 2. Only 20% reported being located in an urban area. Aggregating all the institutions' head-count enrollments, the average for two-year colleges responding to this questionnaire was 12,402 (SD=13,245.6) The wide variation in student enrollments is evident in the range of head-count enrollments reported by responding institutions (i.e., a minimum of 150 students and maximum of 77,086).

Table 2 presents enrollments of the two-year colleges by student FTE enrollment. As in Table 1, the largest percentage of colleges reported enrollments at the lower end of the scale. In the case of FTE enrollment, one-third of the responding colleges had FTE enrollments of 2,000 or below; over 60% had enrollments of 4,000 FTE or below. The mean of the size of the institutions by FTE enrollment was 5,307. Again the variation in enrollment figures is evident from the standard deviation of 6,729 as well as a minimum of 6 and maximum of 59,000 FTE student enrollments for responding two-year colleges. When asked what change had occurred in enrollment over the past two fiscal years, nearly 57% of the institutions reported that FTE enrollments had increased by more than 2% annually. Another 37% indicated FTE enrollments were unchanged and only 6% said their FTE enrollments had decreased by more than 2% annually during the past two fiscal years.

Findings regarding change in FTE enrollments are particularly interesting in light of other findings of the study regarding recent changes in resources. When asked whether financial resources to support the college had been increasing, stable, or decreasing during the past two years, approximately 42% reported that financial resources had decreased. Another 38% said financial resources had remained stable and only 20% reported resources had increased. These results suggest a potentially troubling trend: As enrollment demands upon nearly 60% of the responding colleges have increased, a sizable proportion of these schools have also experienced declining financial resources. If this trend continues, it could create difficulty for any new educational innovation, including new or updated work-based learning programs. Later in this report when barriers to the establishment of work-based learning programs are described, readers should note that three of the highest rated barriers to the growth of work-based learning have to do with financial resources.

Table 2
Student FTE Enrollment of Two-Year Colleges (FY93)

FTE Enrollment by 1,000s	Number of Colleges	Percent of Colleges
Up to 2,000	130	33%
2,001 to 4,000	113	28
4,001 to 6,000	62	16
6,001 to 8,000	24	6
8,001 to 10,000	19	5
10,001 to 12,000	8	2
12,001 to 14,000	10	3
14,001 to 16,000	8	2
16,001 to 18,000	9	2
18,001 to 20,000	2	1
20,001 to 22,000	2	1
22,001 to 24,000	3	1
24,001 & over	8	2

n = 417

The survey also sought to discover the nature of the missions of the responding two-year colleges by asking respondents to indicate the percentage of their student enrollment in the following three basic types of education: (1) transfer or college parallel; (2) occupational, technical, or career (including commercial and industrial) training; and (3) adult, continuing, or basic education. Results show that by calculating a mean for all responding institutions, the transfer or college parallel area and occupational, technical, or career areas were quite similar with 37% (SD=21.5) and 41% (SD=20.3), respectively. A smaller percentage of students were enrolled in adult, continuing, or basic education (22%; SD=19.4). These results suggest that, on average, institutions enrolled roughly the same

number of students in transfer and occupational-technical curricula, accounting for nearly 80% of their total student enrollments.

Overall Scope of Work-Based Learning

An important focus of this study was to determine the scope of work-based learning conducted by U.S. two-year colleges in terms of the types of programs and student enrollments. This goal included determining what percentage of the overall education mission of colleges included work-based learning. To provide a focus for what was meant by work-based learning, the beginning section of the questionnaire prominently displayed the following definition:

> By work-based learning (WBL) programs, we mean instructional programs that deliberately use the workplace as a site for student learning. WBL programs are formal, structured, and strategically organized by instructional staff, employers, and sometimes other groups to link learning in the workplace to students' college-based learning experiences. WBL programs have formal instructional plans that directly relate students' WBL activities to their career goals. These WBL experiences are usually but not always college-credit generating. Instructional programs that involve youth apprenticeships, clinical experiences, school-based enterprises, and formal registered apprenticeships are examples of WBL programs we are seeking to learn more about in this study.

Question two of the survey asked respondents to estimate both the numbers of students (by head-count) in predominant curriculum areas and the number of students who were in work-based learning programs within each of the curriculum areas (see Table 3). In the survey, the major curriculum areas were defined as follows:

> *Occupational-technical* such as health, business and office, technologies, agriculture, and vocational programs.
>
> *Transfer and liberal arts* such as mathematics, fine and applied arts, and humanities.
>
> *Developmental/basic studies* such as remedial courses, learning skills, and human development.
>
> *Community and continuing education* including adult education, lifelong learning, and extension programs.
>
> *Customized or contract training* focusing on technical, academic, or managerial areas for local business and industry.

In addition, respondents could indicate *other* major curriculum areas and provide enrollment figures similar to those reported for the previous categories.

Table 3

Head-Count Enrollment and Work-Based Learning Enrollment in Major Curriculum Areas (FY93)

Major Curriculum Area	Head-Count Enrollment			Number of Students in WBL			Percent of Students in WBL
	n	Mean	*SD*	n	Mean	*SD*	
Occupational-Technical	346	4,695	6,662	346	826	1,485	17.6%
Transfer & Liberal Arts	84	6,346	11,048	84	499	1,936	7.9
Developmental & Basic Studies	32	3,688	6,633	32	470	1,046	12.7
Community & Continuing Education	60	5,018	18,061	60	1,409	5,112	11.0
Customized or Contracted Training	107	1,596	2,724	107	877	1,809	54.9

Note: This table contains only the cases where both head-count enrollment and work-based learning enrollment were provided for major curriculum areas. The difference between the number of cases in this table and the total sample of 454 cases is attributable to respondents' indicating zero (0) enrollments in the major curriculum areas (including work-based learning enrollments) as well as unknown or missing information.

Results in Table 3 show the head-count enrollment and number and percentage of students in work-based learning for each major curriculum area. Results are reported for only those cases where both the head-count enrollment and number of students in work-based learning were provided by respondents. Therefore, this table represents the scope of work-based learning by major curriculum area only where colleges also reported having some level of work-based learning. If zero (0) students were reported to be in a major curriculum area and/or none were reported to be in work-based learning, or if either of these estimates was unknown or missing, the cases were dropped. Consequently, findings reported in Table 3 should not be generalized for all respondents, only those who were known to have some level of work-based learning within the specified curriculum areas. Interestingly, this exercise revealed that a potentially large percentage of institutions had no students involved in work-based learning, had no measure of student involvement, or simply could not provide data for some unidentified reason. Consequently, it was not

possible to provide information regarding "scope" of work-based learning across various major curriculum areas for the entire population of U.S. two-year colleges.

Given that, evident from Table 3 is the preponderance of work-based learning in career-related curriculum areas. Slightly over 75% of respondents provided data regarding student head-count enrollment and work-based learning enrollment for the curriculum area of occupational-technical (vocational) education. Results suggest that for responding institutions, an average of 18% of vocational students were enrolled in work-based learning in FY93. Although this percentage is not particularly high, these results confirm the National Assessment of Vocational Education (NAVE) (1994b) finding that work-based learning is occurring fairly regularly at some level within the vast majority of two-year colleges in the United States. NAVE (1994b) described two-year colleges as providing "a variety of options in the delivery of job-related instruction" (p. 143) and actively engaged in various partnerships with local employers. When examining co-op programs, NAVE reported that 69% of public two-year postsecondary schools had co-op programs serving 81,000 students (2% of all students at those institutions). When assessing apprenticeship, NAVE reported that 25% of public two-year postsecondary institutions had registered apprenticeship programs with a median enrollment of 48 students. Far fewer had youth apprenticeship programs: only 26 two-year institutions in the nation reported having such programs, and only one-half of these programs reported having students enrolled.

Beyond the major curriculum area of occupational-technical education, only a small proportion of responding colleges provided both head-count enrollments as well as estimates of the number of students in work-based learning in any of the remaining major curriculum areas. Based on responses from only 25% of the two-year colleges responding to the survey, a curriculum area with a high percentage of students in work-based learning is customized or contract training with an average of 55% of students reportedly involved. Finding such a high percentage of students in contract training who were also participating in work-based learning is notable because this type of education has been neglected by current policy on school-to-work or vocational education. Rather, the federal legislation concentrates on assisting youth not bound for four-year college to transition into other postsecondary education or workforce opportunities. Adult training or retraining via contracts with local business and industry appears to be an area growing in importance for many of the nation's two-year colleges that needs to be addressed by new federal legislation on school-to-work or vocational education (Jacobs & Bragg, 1994).

Still fewer colleges provided data on head-count enrollment and work-based learning student participation for the major curriculum areas of transfer and liberal arts, developmental and basic studies, or community and continuing education. Although the exact percentage is unknown, results indicate that at least some of the responding institutions did not provide work-based learning for students in any of these major curriculum areas. Of those that did, only 8% of students in transfer programs were reported to be in work-based learning. In addition, less than 13% of students in developmental and basic studies and 11% of students in community and continuing education were reportedly enrolled in work-based learning in responding institutions. These figures project a rather limited use of work-based learning among curriculum areas outside of the traditional career-oriented areas of two-year colleges, a finding that is not particularly surprising given the focus of many of these units on the academic preparation of students for further postsecondary education.

To summarize, probably most importantly, results indicate that many two-year colleges are not accustomed to classifying and counting students based on their involvement in work-based learning. This is evident because many responding institutions were unable to provide information on the incidence of student involvement in work-based learning, particularly in curriculum areas outside of vocational education. If two-year colleges were to expand the notion of work-based learning throughout the entire curriculum, it is apparent that the parts with some foothold are in the occupational-technical education and customized training areas. Involving more vocational program areas would be a logical extension of what has already occurred in many two-year colleges. The extent to which other curriculum areas such as transfer developmental, or continuing education would have interest or expertise to expand work-based learning is unclear. Although, as the next section will indicate, sometimes work-based learning is mandated in an academic discipline in a particular two-year college, suggesting expansion of the concept into transfer or other curriculum areas is feasible.

Programs *Requiring* Work-Based Learning

Question three sought to discover which programs in two-year colleges require work-based learning for students. Table 4 shows program areas as well as average enrollments for the 418 colleges responding to this particular question. Note that the question limited responses to program areas that *require* work-based learning, not just those providing a work-based learning option or advocating such experiences. Therefore,

these responses should not be viewed as indicative of general student participation rates for the specified program areas. Rather, they provide an indication of the incidence in which specific curriculum areas *mandate* student participation in work-based learning and the average enrollment for such programs.

Table 4 shows the number of colleges indicating that student majors are required to participate in a work-based learning component in 58 selected program/discipline areas (listed in alphabetical order). For each program, Table 4 also displays a mean enrollment and standard deviation. (Note that most of the standard deviations are high, indicating a wide range in the number of students in the selected programs at responding colleges.)

Overall, of all the respondents to this particular question, only a small percentage reported requiring students to participate in work-based learning in any of the selected program areas outside of nursing and nursing-related occupations. In this area, however, 63% of the responding institutions indicated they offer nursing and nursing-related occupations that require work-based learning. (It is presumed that most of the other 36% of responding institutions do not offer nursing or nursing-related programs since work-based learning is mandated by professional licensing boards for nursing occupations.) In addition, the average enrollments of nursing and nursing-related occupations are quite large in relationship to most other program/discipline areas. Nursing and nursing-related programs had an average enrollment of 344 students, indicating that a large number of students were participating, at least among responding institutions.

Table 4

Frequency of Selected Programs Requiring Work-Based Learning and Enrollments by Program Area (FY93)

n	Program Area	Enrollment Mean	*SD*	n	Program Area	Enrollment Mean	*SD*
48	Accounting	129	145	12	Interior design	52	37
23	Agribusiness & management	55	35	57	Law enforcement	176	165
12	Architectural design & technololgy	72	58	8	Life sciences	434	477
63	Automotive mechanics	80	88	49	Marketing	68	87
8	Aviation & space technology	94	58	10	Mechnical design technology	53	28
13	Banking & finance	36	23	14	Media & graphic arts	88	88
52	Business administration & management	283	403	14	Metalworking	58	46
10	Biotechnology	46	31	15	Microcomputers	95	78
8	Brick, block, & stonemasonry	33	20	9	Natural resources & environmental sciences	55	71
25	Carpentry	58	75	262	Nursing & nursing-related occupations	344	447
106	Child care & development	126	133	29	Occupational therapy	112	118
10	Communications	41	29	54	Office management	126	133
21	Computer-aided design & drafting	72	73	4	Personnel management	27	17
7	Computer integrated manufacturing	34	26	11	Photography	42	36
33	Computer technology	154	196	38	Physical therapy	77	86
22	Construction	67	72	16	Plumbing	94	108
16	Corrections	107	107	9	Printing	64	36
47	Dental hygiene	62	56	1	Public utilities management	5	0
30	Education	159	187	7	Quality control, management, & improvement	46	23
40	Electronics & electronic technology	110	121	81	Radiologic technology	80	100
76	Emergency medical technology	122	161	15	Real estate	54	54
29	Fashion merchandising	34	30	76	Respiratory therapy	59	67
22	Firefighting	137	166	18	Retailing	57	53
33	Food production	95	92	52	Social work/social services	169	147
7	Forestry	43	20	2	Statistical process control	22	12
18	Heating, air condition, & refrigerator	63	77	6	Telecommunications technology	24	14
13	Humanities	247	224	9	Tool & die making	117	114
19	Horticulture	79	72	27	Welding, brazing, & soldering	35	34
43	Hotel/motel management	73	63	111	Other:	83	134
25	Information processing	241	319				

n = 418

Not surprisingly, other program areas with the highest incidence of required work-based learning are programs that link a mandatory workplace learning experience to occupational credentialling. Therefore, other program areas that require work-based learning are child care and development (including early childhood education) and other health occupations. Table 5 presents the findings by rank order of incidence in responding institutions of the top twenty program/discipline areas that require work-based learning. Note that besides nursing and nursing-related occupations, child care and development programs requiring work-based learning were reported to occur in approximately 25% of responding institutions. All other program/discipline areas were reported less frequently.

Note that four of the top five programs are health-care related and five of the top fifteen are related to business occupations. Generally, enrollments in some of these areas were quite large in comparison to other program areas. For example, the average enrollment in nursing, law enforcement, business administration and management, social work/social services, and computer technologies was greater than 150 students. On average, the program areas of child care and development, emergency medical technician, office management, accounting, and electronics and electrical technician all enrolled more than 100 students, on average.

In addition to the twenty program/discipline areas shown in Table 5, some program areas that rarely require work-based learning have relatively large average enrollments (again, see Table 4). For example, although only eight institutions reported requiring work-based learning for students enrolled in life sciences programs, the average enrollment for these programs was 434. Similarly, an average of 247 students were reported to be enrolled in humanities programs that require work-based learning in thirteen responding institutions. These results provide evidence that work-based learning has been applied to curriculum areas outside of career-related areas. In these cases, the number of transfer or liberal studies students was quite large. Other program areas with average enrollments over 100 students were corrections, education, firefighting, information processing, occupational therapy, and tool and die making. Although these programs appear less frequently in responding institutions, where present, they enroll a sizable number of students in work-based learning opportunities.

Table 5

Top Program Areas Requiring Work-Based Learning Based on Frequency of Occurrence in Two-Year Colleges (FY93)

Program	Number	WBL Enrollment (Mean)
Nursing & nursing-related occupations	262	344
Child care & development	106	126
Radiologic technology	81	80
Respiratory therapy	76	59
Emergency medical technology	76	122
Automotive mechanics	63	80
Law enforcement	57	176
Office management	55	126
Business administration & management	52	283
Social work/social services	52	169
Marketing	49	68
Carpentry, bricklaying, plumbing (Traditional apprenticeships)	49	67
Accounting	48	129
Retailing & fashion merchandising	47	43
Dental hygiene	47	62
Hotel management	43	73
Electronics & electronics technology	40	110
Physical therapy	38	77
Computer technology	33	154
Food production	33	95

n = 418

Given these results, the two areas of health-care (e.g., nursing, radiologic technology, respiratory therapy) and business curriculum (e.g., office management, business administration, marketing) appear to be the most predominant program/discipline areas requiring students to participate in work-based learning. Other curricula may encourage or offer such experiences as well; however, this study focused on the incidence and scope of required work-based learning occurring in 58 program/discipline areas.

Beyond the specific area of nursing and nursing-related occupations, the predominant program area requiring work-based learning was child care and development. Other programs that were reported to require work-based learning by a more modest number of responding institutions included automotive mechanics; law enforcement; traditional apprenticeship areas such as carpentry, bricklaying, and plumbing; hotel management; electronics; computer technology; and food production.

Also of note is what is not in the top listing of programs requiring work-based learning. Few programs related to manufacturing such as metal working, mechanical design, and tool and die making were reported to require students to participate in work-based learning. Of further interest was the relatively low incidence with which high tech programs were reported to require student majors to have work-based learning experiences. For example, computer-aided design and drafting, computer integrated manufacturing, and telecommunications were identified by 21 or fewer institutions as requiring student majors to have work-based learning activities. The reasons for the low incidence of such programs in responding institutions is unknown; however, the authors speculate there could be a number of factors related to the phenomenon. For example, the nation's slow economic climate throughout the past decade may have limited or stifled student opportunities in work-based learning. In addition, other changes in the ways particular businesses and industries operate may have precluded their participation in educational programs such as these. Further, competing priorities within two-year institutions may have limited work-based learning in various curriculum areas. Certainly, the situation is complex and no simple conclusion can be drawn from these results. More research is needed to fully understand the nature of work-based learning that is either required or encouraged across the various program areas of U.S. two-year colleges.

Health and Nonhealth Work Based Learning Programs

Parts Two and Three of the survey delved into selected program areas that utilize work-based learning within the two-year college. In Part Two, the instrument contained questions concerning health curriculum areas that involve work-based learning. In Part Three, the same request was made regarding a nonhealth program area. In both parts, respondents were asked to choose the program that best met the following criteria:

> *Formal Structure* —The program has formal instructional plans that deliberately link workplace learning to students' college-based learning experiences.

Fully Operatural —Faculty, local employers, and other supporting organizations are formally committed to carrying out these work-based learning experiences for students.

Proven Track Record—The program has successfully prepared students to reach their career and academic goals; evaluation data exists to support claims of program effectiveness.

Innovative Approaches—The program uses new and creative strategies in curriculum and instruction, program administration, and partnerships between education, business, labor, and other organizations.

Of all responding institutions, 399 nominated a health work-based learning program. Based on classifying open-ended responses utilizing *DOT* codes, the health program nominated most often was the area of nursing, including licensed practical nurse (LPN), registered nurse (RN), and associate degree nurse (ADN). Table 6 shows that 220 institutions nominated nursing as the program that best fulfilled the criteria provided in the survey. The area of nursing assistant was the program area with the second highest number of nominations. Taken together, the two program areas of nursing and nursing assistant accounted for approximately 76% of the nominations in the area of health work-based learning. Other health program areas that were nominated were radiologic technology (22 institutions), respiratory therapy technician (14 institutions), and medical laboratory technician (13 institutions). None of the other health programs was nominated by more than 10 institutions.

When asked to nominate programs outside of the health fields according to the four criteria specified in the questionnaire, 322 respondents complied. A wide range of program areas was provided by respondents, with the general category of business and office technology topping the list of nominated programs. A total of 41 institutions nominatedprograms that fit into this particular category (based on *DOT* codes). The second largest category of "other" work-based learning programs was that of automotive technology with 34 nominations. Engineering technologies was next with 24 nominations. Programs labeled "cooperative education" or "cooperative work experience" were specified by 21 institutions and agricultural-related occupations by 20 institutions. All other categories received fewer than 20 nominations. These program areas were very wide ranging, including such areas as traditional adult apprenticeships (e.g., carpentry, electrical), human services, business administration, law enforcement, child care, horticulture, travel and tourism, and contract training.

Table 6

Frequency of Health Programs Nominated as "Best" by Two-Year Colleges

Health Program	Number of Colleges
Nursing (LPN, RN, ADN)	220
Nursing assistant	82
Radiologic technology	22
Respiratory therapy technology	14
Medical lab technology	13
Physical therapy technology	9
Dental assistant	6
Allied health	4
Digital medical sonography technology	4
Unknown (program area unspecified or unclear)	4
Dental laboratory technology	3
Emergency medical technology	3
Medical records technology	3
Surgical technology	3
Veterinarian assistant	2
Dietetic assistant	1
Electroencephalography	1
Medical secretary	1
Nursing home assistant	1
Opthalmic dispenser	1
Otho/Prosthetic technology	1
Pharmacy assistant	1

n = 399

In the case of either the health or nonhealth programs, respondents were asked to describe the qualities that led them to select the particular program as one of their institutions "best" work-based learning programs. The length and content of the written explanations for selecting particular programs were diverse, but fell into four general groups. First, a small percentage of respondents indicated that the nominated program was

the "only WBL program" offered and said so in a sentence or less. A second group stated that the program selected met the criteria specified in the questionnaire; some briefly restated the criteria in their own words, explaining generally how they applied to the nominated program. A third and much larger group substantiated that at least one of the criterion was particularly applicable to the nominated program, providing specific examples (e.g., "proven track record" evidenced by transfer rates, job placement rates, and so on) Finally, a fourth group gave extensive explanations for their nominations, indicating how the selected program fit each of the criteria. Some of these descriptions included the following: curricular plans, contractual agreements between the workplace and college, performance measurements, and formal articulation agreements. It was interesting to note that of all the explanations given for selecting a particular program (health or nonhealth), two rationale were stated repeatedly as the basis for a program's worthiness as a "best" work-based learning program. They were the existence of "strong college and employer linkages" and evidence of a "proven track record."

Table 7

Frequency of Other Programs Nominated as "Best" by Two-Year Colleges

Other Program	Number of Colleges
Business & office technology (including secretarial, data processing, & information technology)	41
Automotive technology (including mechanics, service management)	34
Engineering technologies (including aviation, biomedical, electronics, mechanics, telecommunications)	24
Cooperative education & cooperative work experience	21
Agricultural-related occupations (e.g., agribusiness, swine management, fisheries technology, farm management)	20
Early childhood education, general education, & special education	18
Carpentry, electrical, masonry, & plumbing (including traditional apprentices)	17
Business, business management, management, & business administration	15
Human services (including social work)	14
Culinary arts & chef apprenticeship	12
Hospitality, hotel, restaurant management, & food marketing management	11
Unknown—program area unspecified or unclear	11
Criminal justice & law enforcement	10
Accounting, banking, & finance	9
Retail, merchandising, & marketing	9
Child care & child development	8
Health-related occupations classied as "other" (e.g., veterinary technology, mortuary science, mental health, chemical dependency)	7
Manufacturing & industrial occupations (including traditional apprentices)	7
Horticulture	6
Legal assistant	6
Radio, TV, video/media communications, & applied graphics design technology	5
Adult basic literacy & workplace literacy	4
Travel & tourism	4
Contract training with business	3
Interior design	2
Cosmetology	1
Grocery checker	1
Pulp & paper technology	1
Real estate	1

n = 322

Characteristics of Nominated Work-Based Learning Programs

Once a particular program area was nominated for Part Two (health) and Part Three (nonhealth) of the questionnaire, respondents were asked to provide more detailed information. One question asked respondents to indicate the first year the program was implemented. Results indicate that few nominated programs in either the health or other (nonhealth) areas were implemented prior to 1961, although health programs tended to be implemented before the nonhealth programs. Nearly one-third of all nominated health programs were first implemented between 1961 and 1969. In contrast, only about 16% of other work-based learning programs were implemented in 1969 or earlier. Few health programs had been started since 1990, whereas 18% of nonhealth programs had been implemented since that time. Overall, these results suggest other programs are newer, less mature programs; however, the vast majority of all programs nominated, whether health or other, were implemented prior to 1990; in fact, many were started prior to 1980.

Table 8
Year of Implementation of Nominated Health and Other Work-Based Learning Programs

Year	Health WBL Program Percent of Colleges	Other WBL Program Percent of Colleges
Prior to 1961	4.8%	5.6%
1961 to 1969	31.3	9.5
1970 to 1979	37.7	31.7
1980 to 1989	19.8	35.3
1990 to Present	6.4	18.0

For health programs n=374; for other programs n=306.

Continuing with questions that focused on the characteristics of nominated programs, respondents were asked to provide data to a sequence of questions:

1. How many students enrolled in the program during FY93?
2. How many full- and part-time faculty were directly involved in the program in FY93?

3. How many hours would a student have spent in the worksite by the completion of the program?

Results of these questions help to provide a clearer picture of the size and scope of nominated programs. For example, on average, the nominated health programs enrolled 144 students in FY93 (SD=175.5). However, enrollment varied widely, ranging from 10 to 1,292 students, excluding an outlying case where 4,113 students were said to be enrolled in a health work-based learning program. The nominated nonhealth programs had a slightly larger number of students enrolled in FY93, averaging 163 (SD=291.3). The number of students in other (nonhealth) programs ranged from 1 to 2,423.

Whereas the average student enrollment for the nominated health and nonhealth programs was similar, the number of faculty differed. For health programs, an average of 7.16 (SD=6.45) full-time faculty and 7.20 (SD=8.82) part-time faculty were reported to be directly involved. The number of full-time faculty ranged from 1 to 50 (excluding an outlying case of 90) and part-time faculty ranged from 1 to 60 (excluding an outlying case of 204). In regard to other programs, an average of 2.98 full-time faculty (SD=3.23) and 5.71 part-time faculty (SD=8.37) were reported to be directly involved. The number of full-time faculty ranged from one (1) to 25; part-time ranged from 1 to 80.

These results indicate that the nominated health programs had over twice the full-time faculty as other (nonhealth) programs. Part-time faculty were also more prevalent in health than other programs. In fact, when examining other programs, part-time faculty were more prevalent than full-time. This information is particularly interesting in light of the average number of hours reported for students in the workplace upon their completion of work-based learning. On average, health students were reported to have spent 741.0 hours in the workplace (SD=431.2; minimum of 8 hours and maximum of 3,000) and other nonhealth students were shown to have spent 769.6 hours (SD=1,346.1; minimum of 10 hours and maximum of 8,000). These findings suggest that, on average, students in nonhealth programs spend more time in work-based learning than students in health programs and these experiences are accomplished with fewer faculty. However, it is important to point out the wide variability of responses concerning other nonhealth programs. Sixty percent of respondents indicated students' work-based learning experiences accumulated to approximately 400 hours by completion. Only 20 respondents (7.3%) indicated nonhealth work-based learning experiences were 2,000 hours or greater. Consequently, the disparity between faculty involvement in health and nonhealth programs

may not be as extreme as it appears on initial examination. However, faculty capacity to support work-based learning, especially in nonhealth program areas remains a concern.

Another question asked respondents to indicate the size of employers that participated in the nominated work-based learning programs in FY93. Respondents were asked to indicate the percentage of companies that were small (fewer than 100 employees), medium-sized (100-500 employees), or large (over 500 employees). Table 9 provides a comparison of results for health and other nominated programs. For employer groups participating with health work-based learning programs, the largest percentage (44%) were reported to be of medium-sized firms. The remainder of responses were fairly evenly split between small and large companies. For nonhealth nominated programs, the greatest percentage of respondents indicated employers were small (63%). The remaining responses were roughly divided between medium-sized and large companies. Overall, these results indicate that the vast majority of health and nonhealth programs place students in work-based learning experiences with small to medium-sized firms of less than 500 employees. Nonhealth work-based learning programs predominantly use small companies (fewer than 100 employees) for student placements.

Table 9
Size of Employers with Nominated Health and Other Work-Based Learning Programs

Employer Size	Health WBL Program Percent of Colleges (Mean)	Other WBL Program Percent of Colleges (Mean)
Small companies (fewer than 100 employees)	27.6%	63.4%
Medium-sized companies (100 - 500 employees)	43.8	19.0
Large companies (over 500 employees)	29.2	14.7

See the Appendix for the number of cases per cell.

Work-Based Learning Models and Components

Another key question asked respondents to choose from the five general models of work-based learning provided in the questionnaire the one that best fit their nominated program. Respondents could also write in a response under the "other" category if none of the models seemed appropriate. The general model categories were clinical experience, cooperative education, school-based enterprise, traditional apprenticeship, and youth apprenticeship. They were defined as follows:

> *Clinical experiences*—Work-site learning that occurs in association with preparation for a credential in a professional health care field.
>
> *Cooperative education*—A combination of vocational coursework and work experiences in which students earn credit working in jobs secured through cooperative agreements.
>
> *School-based enterprise*—Small businesses created and operated by students where the college implements a real, economically viable business venture.
>
> *Traditional formal apprenticeship*—Registered with the Bureau of Apprenticeship Training
>
> *Youth apprenticeship*—An articulated curriculum linking secondary and postsecondary education that incorporates employer-paid work experience and guided work site learning. Completers receive recognized credentials of occupational and academic skill mastery.

Almost all of the health work-based learning programs were identified by respondents as using the general model of clinical experience (97%). Cooperative education was chosen in approximately 2% of respondents' health work-based learning programs. Another 1% chose the "other" category, typically describing a mix of more than one model (e.g., internship and clinical experience). No respondents identified the health programs as based on the traditional apprenticeship, school-based enterprise, or youth apprenticeship models.

In contrast, nonhealth work-based learning programs typically utilized the cooperative education (co-op) model. Nearly two-thirds of all of the other programs were described as using that particular model. Another 13% of nonhealth programs reported using the clinical experience model, similar to health programs. About an equal percentage (12.7%) reported using an "other" model besides the five models given in the questionnaire for other work-based learning programs. Often this "other" model was described as an

internship experience. Very few respondents indicated that traditional formal apprenticeship, school-based enterprise, or youth apprenticeship were the general model that fit their nominated nonhealth program. In attempting to understand why these particular models were prevalent in nominated programs, it is important to recall the criteria provided in the questionnaire. Respondents were directed to select only those programs that were fully operational (i.e., with formal commitments from faculty, local employers, and supporting organizations) and that had a formal structure and proven track record. Consequently, programs based on the more contemporary youth apprenticeship or the school-based enterprise models may not have been perceived to meet these criteria. The more traditional approaches of clinical experience and co-op were the overwhelming choices when respondents nominated either health or nonhealth programs.

Table 10
Percent of Nominated Health and Nonhealth Programs by Work-Based Learning Model

Model	Health WBL Program Percent of Colleges	Other WBL Program Percent of Colleges
Clinical experiences	97.2%	13.0%
Cooperative education	1.8	63.6
Traditional formal apprenticeship	0.0	6.6
School-based enterprise	0.0	2.2
Youth apprenticeship	0.0	1.9
Other	1.0	12.7

For health programs n=393; for other programs n=316.

To create a better understanding of how various components are implemented in association with health and other work-based learning programs, respondents were asked

to indicate whether 29 components were a formal part of the nominated work-based learning programs during FY93. Respondents could also write in up to three "other" components; however, few components were listed in the returned surveys. By including these components in the Fall 1993 questionnaire, we (the authors) attempted to determine how key elements of the then anticipated federal School-To-Work Opportunities (STWO) law might relate to existing two-year college work-based learning programs and models. Subsequent developments have shown that indeed most of these elements have become a part of the federal STWO law, and the school-based, work-based, and school-to-work connecting components, in particular. Consequently, this particular part of the study has provided a glimpse into how existing "best" work-based learning programs may fit the new STWO legislation.

Overall, of the 29 school-to-work components presented in the questionnaire, 50% or more of the respondents indicated that 19 were implemented as a formal part of health work-based learning programs. By comparison, 18 components were indicated to be a formal part of nonhealth work-based learning programs according to 50% or more of the respondents. The actual rankings by percentage of respondents for all 29 components for both health and other work-based learning programs is provided in Table 11 (based on the percentage of respondents affirming the components for health work-based learning programs.)

Table 11

Frequency Colleges Report Components as a Formal Part of Nominated Health and Nonhealth Work-Based Learning Program

Component	Health WBL Percent of Colleges	Other WBL Percent of Colleges
Periodic evaluation of student progress	99.7	100.0
Coordinated classroom and workplace learning	99.7	96.5
Formal contracts or co-op agreements with institutional partners	96.4	73.2
Formal assessment, certification of skills based on individual standards	95.9	75.3
Recognized credentials of academics, occupational mastery for completers	94.6	77.2
Integrated occupational-technical & academic instruction	93.8	57.3
Formal program of career awareness, orientation, & guidance	90.3	85.0
Governing/advisory board composed of institutional partners	88.4	84.5
Rotation of students through different jobs	87.8	62.2
Preparatory or remedial services to enable students to enter WBL	83.0	80.5
Regular consultation between workplace mentors & college faculty	82.4	82.2
Transitional services for special needs populations/at-risk students	73.5	66.5
Mentors or coaches for students in the workplace	69.7	74.8
Marketing and/or promotion of WBL programs	66.5	76.9
Donations of funding & equipment by business	64.0	57.3
Job placement for WBL graduates	61.6	77.1
Training of college faculty & staff in the workplace	60.0	39.5
Individualized student training plans	57.4	77.6
Inservice of college faculty & staff in WBL concepts	50.7	42.1
Workplace (employer-based) training centers used for WBL	48.8	42.7
Recruitment of targeted student groups	48.0	59.0
Training and credentialling of workplace mentors or coaches	47.0	30.8
Training of college faculty and staff conducted by business	35.3	34.4
Formal articulation agreements with secondary school WBL programs	22.6	32.8
Incentives to increase WBL participation by businesses, trade organizations, unions, & community-based organizations	19.2	33.5
Guaranteed hiring of qualified graduates by particiating employers	13.1	15.4
Funded Tech Prep program	12.7	17.4
Wages and stipends for students	5.1	69.3
Entrepreneurship or small business training for students	4.0	41.9

See the Appendix for cases per cell. Responses are rank ordered according to the percentage of components implemented as a formal part of the nominated health programs.

Over 90% of respondents indicated some components to be a formal part of health work-based learning programs (that were also overwhelmingly based on the clinical experience model) such as periodic evaluation; coordinated classroom and workplace learning; formal contracts or cooperative agreements with partners; formal assessment and certification of skills based on industry standards; integrated occupational-technical academic instruction; and formal programs of career awareness, orientation, and guidance. By comparison, only two components were indicated by over 90% of respondents as a formal part of nonhealth work-based learning programs (that were also primarily based on the cooperative education model). These two components were periodic evaluation of student progress and coordinated classroom and workplace learning.

Since a majority of components were a formal part of health and nonhealth work-based learning programs, it is interesting to examine the components that were *not* selected for each type of work-based learning program. In regard to health work-based learning programs, entrepreneurship or small business training and student wages or stipends were rarely provided. In addition, guaranteed hiring was reported by few respondents in regard to either health or other work-based learning programs. Incentives to increase participation in work-based learning were reported by slightly less than 20% of respondents regarding health programs and by only about one-third of respondents regarding other programs.

In addition, few respondents reported that either health or other work-based learning programs were receiving Tech Prep funds. Since Tech Prep funding is a relatively recent phenomenon and the vast majority of programs were first implemented earlier than 1990 (many programs were implemented prior to 1980, in fact), it is not particularly surprising that few programs were receiving Tech Prep funds. This finding may suggest, however, that there may be opportunities to connect the Tech Prep concept (and funding) to two-year college work-based learning programs or to modify or create new programs that better fit that particular approach. Respondents indicated that a fairly small number of health programs (23%) and about one-third of nonhealth programs were formally articulated with secondary schools. Where these articulation agreements were already in existence but Tech Prep curriculum was not fully developed, as prior research suggests is commonplace (Bragg, et al., 1994; NAVE, 1994b), there may be opportunity to implement the Tech Prep concept more fully.

Other components reported to be implemented by less than 50% of health or other work-based learning programs in FY93 were training and credentialling of workplace mentors, training of college faculty and staff by employers, and use of workplace training centers of local employers. In addition, only 42% of other work-based learning programs reported having a component of inservice of college faculty and staff in work-based learning concepts. All of these components deal with the human resources side of the innovation. Their limited presence in either health or other programs could be detrimental to using the various work-based learning models on a wider scale.

Finally, in regard to formal implementation of components, there were substantial differences in the frequency with which several components were implemented between health and other work-based learning programs. For instance, integration of occupational-technical and academic instruction was reported to be a formal part of 95% of health work-based learning programs but only 57% of other work-based learning programs. The three components of formal contracts or cooperative agreements with partners, formal assessments and certification based on industry standards, and recognized credentials of mastery for completers were all reported by about 95% or more of health programs compared to approximately 75% of other programs. In addition, the rotation of students through different jobs occurred with 88% of health programs but only 62% of other programs. Similarly, the training of college faculty and staff in the workplace was a part of 60% of health programs but only 40% of other programs.

In contrast, nearly 70% of other work-based learning programs reported offering wages and stipends for students, whereas only 5% of health programs provided them. Entrepreneurship or small business training for students was reported by nearly 42% of other work-based learning programs in comparison to only 4% of health programs. Other work-based learning programs were also more likely than health programs to have individualized student training plans, 78% and 57% respectively. Other programs were also somewhat more likely to have marketing and/or promotion (77%) than health programs (67%), and slightly more likely to have mentors or coaches for students in the workplace (75%) than health programs (70%). Many of these differences may be attributable, at least in part, to the use of the clinical experience model for the health programs. However, more in-depth study is needed to ascertain the nature of differences between the types of two-year college programs (health and other) as well as the various models used for work-based learning.

Results presented in this section are helpful in comparing and contrasting how particular components fit the health and nonhealth work-based learning programs. Implicit within these findings is the fact that nearly all the health programs were reported to be based on a clinical experience model and the majority of nonhealth programs were said to be based on a cooperative education model. However, this comparison of models is incomplete without delineating the nonhealth programs according to the various models selected by respondents. Table 12 presents seven different model types along with the frequency with which respondents reported each of 22 selected components to be a formal part of the programs associated with these models. (Caution is suggested in interpreting results for the school-based enterprise and youth apprenticeship models where the number of cases is extremely low.) By examining the relationships between models and components in this manner, it is possible to begin to identify patterns of pedogogical, programmatic, and administrative activity associated with each particular type of model. It is also possible to begin to examine how particular models are likely to fit selected components of the new STWO legislation.

Evident in Table 12 are several components implemented by nearly all programs no matter the type of model. For instance, coordinated classroom and workplace learning, integrated occupational-technical and academic curriculum, and periodic evaluation of students were reported to be a formal part of over 80% of all the models. In contrast, some components were implemented in low frequency regardless of the model. Components where 50% or fewer respondents indicated their implementation as a formal part of a nominated work-based learning program were Tech Prep funding, training and credentialling of mentors or coaches, inservice of college faculty and staff, and formal articulation agreements with secondary schools, with the exception being the youth apprenticeship model where approximately 83% of respondents utilizing that model indicated this particular component to be a formal part of the model.

Table 12

Percentage of Respondents Indicating Selected Components as a Formal Part of Work-Based Learning Models

Component	Clinical Health (n=382)	Clinical Other (n-41)	Co-op (n=200)	School-Based Ent (n=7)	Trad. Apprent. (n=21)	Youth Apprent (n=6)	Other (n=36)
Coordinated classroom and workplace learning	99.5%	100.0%	95.0%	100.0%	95.2%	83.3%	92.5%
Integrated occupational-technical and academic instruction	91.6	95.1	82.5	100.0	85.7	100.0	92.5
Individualized student training plans	49.5	80.5	75.0	85.7	61.9	50.0	72.5
Rotation of students through different jobs	83.7	61.0	53.5	85.7	71.4	66.7	55.0
Wages or stipends for students participating in WBL	3.9	14.6	72.5	28.6	95.2	83.3	45.0
Periodic evaluation of student progress	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Formal program of career awareness, orientation, and guidance	87.2	87.8	80.5	71.4	76.2	100.0	67.5
Formal assessment, certification of skills based on individual standards	94.2	82.9	63.5	71.4	95.2	83.3	72.5
Recognized credentials of academic occupational mastery for completers	88.7	78.0	65.8	71.4	100.0	66.7	72.5
Recruitment of targeted student groups	47.1	63.4	59.0	57.1	52.4	100.0	55.0
Preparatory or remedial services to enable students to enter WBL	76.7	78.0	74.5	71.4	85.7	66.7	72.5
Transitional services for special needs populations/at-risk students	65.7	61.0	61.5	71.4	55.0	50.0	37.5
Job placement for WBL graduates	56.5	53.7	75.0	100.0	76.2	66.7	52.5
Formal articulation agreements with secondary school WBL programs	19.4	34.1	26.5	28.6	28.6	83.3	30.0
Funded Tech Prep program	10.7	4.9	18.5	14.3	4.8	16.7	17.5
Mentors or coaches for students in the workplace	66.2	70.7	71.5	57.1	85.7	66.7	70.0
Training and credentialling of workplace mentors or coaches	41.9	26.8	21.0	42.9	47.6	50.0	37.5
Inservice of college faculty and staff in WBL concepts	44.9	36.6	43.0	42.9	42.9	33.3	22.5
Incentives to increase WBL participation by businesses, trade organizations, unions, community-based organizations	14.4	14.6	26.5	16.7	61.9	66.7	32.5
Formal contracts or coop agreements with institutional partners	95.3	61.0	75.0	16.7	90.5	50.0	60.0
Governing/advisory board composed of institutional partners	86.1	80.5	83.3	100.0	90.5	83.3	77.5
Marketing and/or promotion of WBL programs	57.3	53.7	76.4	57.1	81.0	66.7	70.0
Average percentage for all components	**62.8**	**60.9**	**63.6**	**63.2**	**72.0**	**69.7**	**59.3**

Finally, to obtain an overall picture of how the models related to the selected components, the unweighted percentages for the 22 selected components were averaged for each model (shown in the bottom line of Table 12). By comparing the average percentages, it appears that the models were fairly comparable in addressing the school-to-work concept as operationalized via the 22 selected components. All seven models showed an average of between 72% for traditional apprenticeship and 59% for "other." However, some variation was noted. Over 80% of respondents indicated that the model with the highest average percentage—traditional apprenticeship (72%)—had 11 components as a formal part of work-based learning programs. These components included student wages or stipends, formal assessment and certification of skills based on industry standards, recognized credentials of occupational and academic mastery for completers, mentors or coaches for students in the workplace, formal contracts, governing boards, and marketing. Incentives to increase participation by business, labor, and others was also reported by a high percent of respondents relative to most other models. In contrast, few respondents indicated that traditional apprenticeship employed formal articulation agreements with secondary schools (29%) or Tech Prep funds (5%).

Similarly to the traditional apprenticeship model, student wages or stipends and formal assessment and certification of skills based on industry standards were a part of the vast majority of programs claiming the youth apprenticeship model, with the model showing an average percentage of 70% of the 22 components. In addition, recruitment of targeted student groups, along with incentives to increase business, labor, and others' participation and training and credentialling of workplace mentors were identified by a high percentage of respondents relative to most of the other models. However, in contrast to the traditional apprenticeship model and several of the other models, formal articulation agreements with secondary schools (83%) and Tech Prep funding (17%) were reported in greater percentage for the youth apprenticeship model.

Whereas these two models were shown to formally employ the greatest percentage of the selected components, it is important to note that these models were identified by very few responding colleges. Together, programs utilizing the two models accounted for less than four percent of all nominations related to both health and nonhealth work-based learning. If these two models are to be utilized more extensively by two-year colleges, thereby leading to programs that institutions would nominate as their "best," information about these models needs to be disseminated more widely. Although data from this study

does not fully address the scope of availability of these models, it is clear that few respondents identified these models as the basis for either health or nonhealth programs that addressed the four criteria for selecting "best" work-based learning programs. However, when they were nominated, they seemed to address the selected components quite well in relation to the other models, although evidence of their quality was not available.

The remaining five models shown in Table 12 all had an average percentage on the 22 selected components of between 64% for cooperative education and 59% for "other." Clinical-health (i.e., the clinical model associated with programs) and school-based enterprise both had an average percentage of 63% and clinical-other (i.e., the clinical model associated with nonhealth programs) had an average percentage of 61%. All five models were similar in that a high percentage of respondents indicated coordinated classroom and workplace learning, integrated occupational-technical and academic education, periodic evaluation, and governing boards to be a formal part. All of these models employed components such as formal articulation agreements with secondary schools; Tech Prep; training and credentialling of workplace mentors; inservice of college faculty; and incentives to increase business, labor, and others' involvement to a more limited extent than other models. Beyond these similarities among the five models, however, each model tended to employ one or a few components to a greater extent than the other models.

Over 80% of respondents identifying the clinical-health model indicated that rotation of students through different jobs, a formal program of career awareness, formal assessment and certification, formal contracts, and governing boards were components. The school-based enterprise model was shown to employ rotation of students through different jobs, job placement, and individualized student training plans to a greater extent than several other models. (However, due to the very low number of cases of this particular model, similarly to the youth apprenticeship model, readers are asked to interpret the findings cautiously.) Co-op employed student wages or stipends, Tech Prep funding, and marketing to a greater extent than many of the other models. The clinical-other model utilized individualized student training plans and recruitment of targeted student groups more than most other models. Finally, the "other" model, primarily reported to be internships, did not employ any of the components in a particularly frequent way in comparison to the other models except for Tech Prep funds which were reported by 17.5% of respondents, second only to co-op where 18.5% of respondents indicated Tech Prep funds were used.

These results suggest that there is variation in the way the models fit the school-to-work components and no one model has all the components. Models such as traditional apprenticeship and youth apprenticeship tended to have components such as student wages or stipends and incentives for business, labor, and others to participate in work-based learning to a greater extent than other models. In contrast, the clinical-health, clinical-other, co-op, and school-based enterprise models often employed components such as individualized student training plans and job rotation more than the other models. Overall, the two models of traditional apprenticeship (72%) and youth apprenticeship (70%) showed the highest average percentage on the 22 selected components but, interestingly, few programs utilizing these models were nominated. However, the remaining five models were not far behind with a range of average percentage from co-op (64%) to "other" (59%).

Location of Primary Responsibility for Components

A final area pertaining to Parts Two and Three of the survey centered on the party or parties with whom primary responsibility for 21 specific work-based learning components rested. Respondents were asked to indicate the location of primary responsibility for the selected health and other (nonhealth) work-based learning programs. The choices of primary location were as follows:

> *College* has primary responsibility for the component.
>
> *Workplace* (e.g., employers, labor) has primary responsibility for the component.
>
> Some *other agency* (e.g., community-based agency) has primary responsibility for the component.
>
> *Formal/shared contract or agreement* between the college and any other organizations (e.g., employers, labor, community-based organizations) defines joint responsibility for the component.

Respondents could also select *NA* if the component was thought to "not apply" to the nominated health or other work-based learning programs. A complete listing of components is presented in Table 13 as well as the frequency of colleges' responses to each particular item.

Table 13

Location of Primary Responsibility for Selected Work-Based Learning Components of Nominated Health and Other Nonhealth Programs

Component	Health WBL Program					Other WBL Program				
	College	Work-place	Other Agency	Formal/ Shared	NA	College	Work-place	Other Agency	Formal/ Shared	NA
Delivery of instruction primarily the responsibility of	94.2%	0.5%	0.0%	5.0%	0.3%	82.9%	3.1%	0.3%	12.8%	0.9%
Curriculum development primarily the responsibility of	93.0%	0.0%	0.8%	6.0%	0.3%	80.1%	2.2%	0.6%	15.9%	1.2%
Student selection primarily the responsibility of	94.0%	0.8%	0.0%	4.3%	1.0%	60.7%	14.3%	1.9%	19.9%	3.1%
WBL experiences take place primarily at	4.0%	74.6%	4.0%	15.6%	1.8%	3.1%	81.7%	1.2%	12.7%	1.2%
Supervision of students primarily the responsibility of	72.9%	5.3%	0.0%	21.1%	0.8%	25.8%	25.5%	1.6%	45.7%	1.6%
Evaluation of students primarily the responsibility of	72.7%	2.3%	0.0%	24.6%	0.5%	33.0%	10.6%	0.3%	54.5%	1.6%
Organizing help for students having difficulty in WBL primarily the responsibility of	87.0%	1.0%	0.0%	10.8%	1.3%	70.5%	3.1%	1.6%	22.4%	2.5%
Student wage rates primarily determined by	0.3%	3.8%	1.0%	0.8%	89.2%	0.9%	61.5%	3.4%	5.0%	29.2%
Assessment and certification of student skill mastery at program completion primarily the responsibility of	76.6%	0.5%	7.0%	14.8%	1.0%	51.9%	7.8%	3.1%	29.8%	7.5%
Awarding of recognized credentials of mastery primarily the responsibility of	68.9%	0.3%	22.1%	3.0%	5.8%	64.0%	3.1%	6.5%	11.2%	15.2%
Selection and assignment of workplace mentors or coaches primarily the responsibility of	41.2%	13.6%	0.0%	22.6%	22.6%	25.5%	36.0%	2.2%	18.6%	17.7%
Training and credentialling of mentors or coaches primarily the responsibility of	38.9%	13.3%	2.3%	14.1%	31.4%	23.0%	25.2%	4.0%	10.2%	37.6%
Final negotiation of contractual agreements among institutional partners primarily the responsibility of	50.9%	0.0%	0.0%	46.1%	3.0%	41.0%	0.9%	1.2%	36.6%	20.2%
Instructor/student ratios primarily determined by	53.6%	4.0%	26.8%	14.0%	1.5%	76.7%	5.0%	3.1%	10.2%	5.0%

60

61

Table 13 (cont.)

Component	Health WBL Program					Other WBL Program				
	College	Work-place	Other Agency	Formal/ Shared	NA	College	Work-place	Other Agency	Formal/ Shared	NA
Length of training & related instruction is primarily determined by	68.9%	0.0%	18.8%	9.5%	2.8%	74.5%	1.9%	6.2%	16.5%	0.9%
Placement of students in permanent full-time jobs primarily the responsibility of	31.2%	12.1%	3.3%	7.5%	46.0%	36.0%	14.3%	4.7%	13.0%	32.0%
Transporting students primarily the responsibility of	7.8%	0.3%	0.5%	1.0%	90.5%	3.4%	1.9%	2.8%	1.9%	90.0%
Student work permits primarily the responsibility of	8.5%	1.3%	4.3%	1.0%	84.9%	7.5%	6.2%	2.2%	1.2%	82.9%
Student insurance or liability primarily the responsibility of	75.9%	1.8%	1.0%	4.8%	16.5%	29.6%	24.6%	2.5%	9.0%	34.3%
Compliance with state or federal child labor laws primarily the responsibility of	29.3%	5.3%	1.3%	11.3%	52.9%	15.5%	25.2%	2.8%	10.2%	46.3%
Compliance with state and federal laws governing health and safety is primarily the responsibility of	33.8%	8.0%	0.8%	54.1%	3.3%	17.1%	43.6%	2.2%	30.5%	6.5%

When associated with health work-based learning programs, 12 components were reported by 50% or more of the respondents to be the primary responsibility of the college. More than 90% of respondents indicated that delivery of instruction, curriculum development, and student selection were the primary responsibility of the college. More than 70% of respondents indicated that for health programs the college also had primary responsibility for organizing help for students, assessment and certification of skill mastery at program completion, student insurance or liability, and supervision and evaluation of students. More than 50% of respondents indicated that the college was also primarily responsible for awarding credentials of mastery, final negotiation of contractual agreements, instructor/student ratios, and determination of the length of instruction. In fact, in only the area of providing the site was the workplace taking primary responsibility for health work-based learning programs. Few of the components were seen as having formal/shared responsibilities or involving other agencies as the primary party taking responsibility. Only in the case of final negotiation of contractual agreements among institutional partners was the primary responsibility viewed as formal/shared by nearly one-half of the respondents. Finally, in the case of only three components did an "other" agency, presumably a professional licensing organization, play any significant role in health work-based learning programs. These three components were awarding of recognized credentials, establishing instructor/student ratios, and specifying the length of training and related instruction.

Many similarities and some important differences were evident in the way various organizations took responsibility for work-based learning associated with nonhealth programs, the majority of which followed a co-op model. Similarly to health programs, although sometimes not to the same degree, colleges reported having the primary responsibility for delivery of instruction, curriculum development, student selection, organizing help for students, assessment and certification of skill mastery, awarding of recognized credentials, instructor/student ratios, and determining the length of training. Employers were reported by the majority of respondents to have primary responsibility for only two components: (1) providing sites for work-based learning and (2) determining student wage rates. Of note, however, was the finding that approximately 50% of respondents indicated that supervision and evaluation of students were formal/shared responsibilities of the college and other organizations. There was little evidence of other agency involvement in any of the components of nonhealth work-based learning programs.

In regard to both health and other work-based learning programs, it is interesting to note that nearly all respondents indicated that the components of transporting students and securing student work permits were "not applicable." Nearly one-half of the respondents indicated that compliance with state or federal child labor laws was "not applicable." These responses are likely to be associated with the fact that nearly all students in two-year colleges are over the age of 18. According to a 1986 national survey conducted by the Center for the Study of Community Colleges, the mean age of persons enrolled in community colleges was 29 (Cohen & Brawer, 1989). Consequently, some of the issues associated with providing youth under the age of 18 with work-based learning opportunities may not be perceived to be as serious a concern for two-year college students, leading respondents to view some components as "not applicable" to their efforts to offer work-based learning opportunities. Nevertheless, issues related to safety and liability remain important no matter the age of students, and these results indicate that colleges rather than employers have primary responsibility for such concerns.

Besides these components, it is important to note that placement of students in permanent full-time jobs was viewed as "not applicable" by 46% of responses pertaining to health programs and 32% of responses associated with other programs. In addition, 89% of respondents indicated that determination of student wage rates was "not applicable" for health programs and, as was previously reported, rarely were wages reported to be provided to students in health-related work-based learning. In addition, the selection, assignment, training, and credentialling of mentors was also viewed as "not applicable" to a fairly large percentage of respondents. Of course, as previous results indicate, these particular components were not typically associated with health programs. It should be noted, however, that these particular components are specifically cited in the federal STWO legislation as exemplifying means to accomplish a work-based or school-to-work connecting component of a school-to-work program.

These findings suggest that two-year colleges have a great deal of responsibility for work-based learning when it comes to either health or nonhealth programs. Nearly every facet of health programs was reported to be the primary responsibility of the college, including selecting, instructing, mentoring, assessing, and certifying students. Except for the areas of supervising and evaluating students, the components of nonhealth programs were similarly undertaken predominantly by the colleges. These results suggest that although a part of the learning process may take place at the workplace, often it remains the

responsibility of two-year colleges rather than employers to carry out the essential elements of the programs. Even within the workplace, it appears that individuals may be seen primarily as "students," as is evidenced by the lack of wages paid for work conducted there. Of course, that arrangement may have advantages, particularly where students could become involved in work that is not particularly educational or challenging. Without pay, students may also be more able to rotate through various types of work situations or be removed when a worksite proves to be problematic. Nevertheless, these findings portray the heavy responsibility placed on educational institutions, in this case two-year colleges, to coordinate and deliver what are perceived to be the essential elements of work-based learning.

Work-Based Learning Support and Barriers

Results pertaining to respondents' perceptions of the support for and obstacles to work-based learning are presented and discussed in this section.

Level of Support for Work-Based Learning

Colleges that have established and operated work-based learning programs have done so with the involvement of many groups. Predictably, a number of factors may have influenced these relationships, resulting in varying levels of support from groups that have a potential stake in work-based learning, that is, stakeholder groups. The survey sought to identify the level of support from groups within and outside of two-year colleges for work-based learning (see Table 14).

Table 14 lists fourteen stakeholder groups that could have a vested interest in work-based learning programs. The remaining columns in the table show the percentages of "levels of support" as reported by the colleges. Findings are listed in the order of the groups' mean ratings, with the highest ratings at the top of the list and the lowest at the bottom. Evident from the data is the perceived high level of support for work-based learning from 11 of the 14 groups, as evidenced by mean ratings of 3.0 or higher. Local advisory committees/boards and college administrators were viewed as particularly supportive with mean ratings of 3.45 and 3.37, respectively.

Table 14

Level of Support for Work-Based Learning by Stakeholder Group

Group	Level of Support					Mean
	Poor	Fair	Good	Excellent	NA	(*SD*)
Local advisory committees/boards	0.7%	8.1%	31.1%	49.8%	9.0%	3.45 (.69)
College administrators	1.6	10.5	33.3	47.5	7.1	3.37 (.75)
State licensing agencies	2.9	7.5	26.7	31.9	29.7	3.27 (.82)
College trustees	2.9	8.8	30.4	33.0	23.6	3.25 (.81)
Business/industry representatives	1.8	12.1	39.6	36.8	8.4	3.23 (.75)
College students	2.0	12.3	42.6	33.7	9.4	3.19 (.75)
College faculty	3.6	15.2	37.6	36.5	7.2	3.15 (.83)
State education agencies	3.5	14.1	32.4	32.4	16.3	3.14 (.85)
Professional associations	3.3	9.7	33.9	26.9	24.4	3.14 (.81)
College counselors	4.0	17.4	35.9	33.0	9.6	3.08 (.85)
Community-based organizations	2.6	13.4	33.7	18.7	30.0	3.00 (.79)
Parents	4.2	10.1	21.1	15.9	46.9	2.95 (.91)
Labor union representatives	4.8	17.4	15.9	7.9	52.6	2.58 (.90)
Four-year colleges/universities	20.7	19.2	15.6	7.0	36.1	2.14 (1.01)

n = 448

The support groups are rank ordered according to mean ratings based on scaled responses of 1 to 4 for *poor* to *excellent* starting with the highest rated group at the top of the list and proceeding to the lowest rated group at the bottom.

Groups at the bottom of the list of work-based learning supporters were four-year colleges and universities, labor union representatives, and parents. Interestingly, a fairly high percentage of these three groups was viewed as "not applicable" when respondents were asked to assess their level of support, indicating at least some respondents may have thought their support was irrelevant to work-based learning programs. Nevertheless, those

responding to the items indicated relatively poor support from all of these groups, especially organized labor and four-year colleges and universities. Although there may be many reasons for this lack of support, it is likely that organized labor is perceived to view work-based learning as competitive with its own traditional adult apprenticeship programs. In the case of four-year colleges, one concern may be a weakening of academic standards of feeder institutions (e.g., high schools and community colleges) when nontraditional teaching and learning processes such as work-based learning are employed. Interestingly, findings regarding poor support for work-based learning from parents and four-year colleges closely parallel results obtained from a national study of barriers to Tech Prep (Bragg et al., 1994). One can speculate that parents' concerns may be linked to some of the same issues regarding academic preparation. For instance, they may be concerned that work-based learning is preparing their child for a technical (and "blue-collar") job and be disappointed in their child's participation in curriculum not primarily focused on preparation for traditional four-year college education. Together, these results suggest one or more interrelated, pervasive issues surrounding work-oriented education in relation to more traditional, academic-oriented approaches to education.

Generally, these results suggest that stakeholder groups which may have the most potential to benefit from work-based learning are also the most supportive of it. Advisory boards and business/industry representatives, generally composed of individuals from a specific occupational-technical field, can benefit because they receive trainees and later program completers. College administrators, staff, and faculty can benefit when programs are successful and there are close relationships established between the institution and businesses in the community. Finally, students can benefit by having the opportunity to test out their work competencies prior to entering the adult labor market. Groups that may view work-based learning as a poor alternative to traditional college curricula or even as a threat to their own goals (i.e., parents, labor, four-year schools) appear to be the least supportive of the concept, suggesting areas that need attention if the work-based learning concept is to be disseminated within the nation's two-year colleges.

Barriers to Work-Based Learning

The survey also provided an opportunity for responding colleges to report barriers to the growth of work-based learning within their institutions. For each of the 20 barriers presented in the questionnaire, respondents were asked to indicate the level of impact it would have on further development of work-based learning in the college (see Table 15).

Column one lists the barriers and columns two through seven present the percentage of respondents indicating the impact as being *none* through *very major*. Column eight presents the mean ratings for each barrier based on the groups' ratings on the 1 to 6 scale.

Results shown in Table 15 reveal that of the 20 barriers only a few were perceived to have a *major* or *very major* impact on the growth of work-based learning according to the majority of respondents. Only the two barriers of *lack of staff, time, and money dedicated to work-based learning* and *too little funding for work-based learning* were rated as having a *major* or *very major* level of impact by more than 50% of respondents. Both of these barriers were rated well over 4.0 by the respondents. Two other barriers, *too little time in curriculum for students to participate in work-based learning* and *lack of career orientation for students participating in work-based learning* were rated at approximately 3.5, indicating a *moderate* level of impact on the growth of work-based learning. Interestingly, three of these barriers relate to the level of resources (people, time, money) needed to influence the growth of work-based learning. These results may be related, at least in part, to the enrollment growth and downward trends in funding highlighted in an earlier section of this report.

Five additional barriers were rated by respondents at approximately the 3.3 level, indicating a *minor* to *moderate* level of impact. These were *lack of active involvement by business and industry, lack of interest from business and industry, lack of formal policy to support work-based learning, lack of general awareness about work-based learning*, and *lack of interest in work-based learning*. These barriers were perceived to be of a *moderate* to *very major* impact level by 45% or more of the respondents. Together, these barriers point to a lack of awareness about work-based learning and an absence of a key part of the formal structure (governmental or private-sector) necessary to sustain it. These factors seem crucial if the concept of work-based learning is to be expanded to more areas of two-year college curriculum or to more of the nation's two-year postsecondary institutions.

Table 15

Ratings of Twenty Barriers Impacting the Growth of Work-Based Learning

Barrier	Impact on Growth of WBL: None	Very Minor	Minor	Moderate	Very Major	Major	Mean (*SD*)
Lack of staff, time, & money dedicated to WBL	7.5%	3.3%	9.7%	23.8%	37.2%	17.2%	4.33 (1.37)
Too little funding for WBL	10.1	6.2	9.5	19.2	34.6	19.2	4.21 (1.54)
Too little time in curriculum for students to participate in WBL	15.2	8.8	15.0	25.6	25.1	9.0	3.56 (1.55)
Lack of career orientation of students prior to entering college	13.2	11.8	20.3	27.0	20.5	7.1	3.51 (1.40)
Lack of active involvement by business & industry	15 2	14.7	19.9	26.3	15.8	8.0	3.37 (1.50)
Lack of interest from business & industry	16.1	15.0	23.4	24.1	13.4	8.0	3.34 (1.57)
Lack of formal public policy to support WBL	19.8	10.8	16.7	25.8	18.5	7.0	3.33 (1.28)
Lack of general awareness about WBL	12.5	11.2	25.7	34.9	12.8	2.9	3.33 (1.28)
Lack of interest in WBL	11.9	13.9	27.1	30.4	13.6	3.1	3.30 (1.29)
Lack of inservice available for personnel associated with WBL	17.0	15.0	21.4	26.4	15.9	3.1	3.19 (1.41)
Lack of focus on careers during college study	16.4	16.8	22.0	27.4	13.9	3.6	3.16 (1.40)
Lack of focus on integrated occupational education & academic	18.7	15.4	20.5	29.3	11.9	2.6	3.08 (1.39)
Negative attitudes toward occupational (vocational) education	20.9	18.9	20.9	21.6	13.0	3.3	2.97 (1.45)
Lack of knowledge and skills among faculty in WBL	20.7	16.1	21.8	24.2	13.9	2.0	3.00 (1.41)
Lack of authority of local personnel to make changes needed to implement WBL	22.5	17.4	22.9	18.9	11.9	4.8	2.95 (1.49)
Lack of cooperation among institutional partners	23.5	23.5	27.1	14.1	7.6	4.3	2.72 (1.39)

Table 15 (cont.)

Barrier	Impact on Growth of WBL None	Very Minor	Minor	Moderate	Very Major	Major	Mean (*SD*)
Lack of cooperation by labor groups	29.5	21.0	20.6	14.5	7.8	6.5	2.70 (1.53)
Conflict with other curriculum reform movements	25.1	18.7	28.2	17.6	6.8	2.0	2.68 (1.32)
Looking at WBL as another name for traditional occupational (vocational) programs	28.6	17.8	22.0	21.4	6.8	1.8	2.65 (1.37)
Battles between faculty groups concerning WBL	34.6	19.6	24.4	12.3	5.5	2.0	2.40 (1.33)

n=448

The barriers are rank ordered according to mean rating based on the scale of 1 to 6 for *none* to *very major* starting with the highest rated barrier at the top of the list and proceeding to the lowest rated barrier.

Five of the barriers were given a mean rating of between 2.95 and 3.20 by respondents. Many of these barriers were considered to have a *minor* or *moderate* level of impact by the majority of respondents. Included among these barriers were issues related to a *lack of interest, awareness, and knowledge and skills among faculty in work-based learning concepts* as well as a *lack of inservice on work-based learning*. Several of the barriers were also associated with the focus of curriculum including a *lack of focus on careers*, a *lack of focus on integrated occupational and academic education*, *negative attitudes toward occupational (vocational) education*, and a *lack of authority of local personnel to make changes needed to implement work-based learning*. Two additional barriers related to the *lack of cooperation* for work-based learning from institutional partners (mean=2.71) and labor groups (mean=2.70) were rated just below those discussed previously. Interestingly, approximately 50% of the respondents indicated that these barriers had no or *very minor* impact on the growth of work-based learning.

Three barriers received mean ratings below 2.70, indicating respondents viewed them as having a *minor* or even lesser impact on the growth of work-based learning. These barriers were *conflict with other curriculum reforms*, *work-based learning as another name for vocational programs*, and *battles between faculty groups concerning work-based learning*. At least 25% of the respondents indicated that these barriers had no impact on the

growth of work-based learning, and approximately 50% indicated these barriers had no or *very minor* impact.

In summary, it appears that too few resources (time, people, and funding), too little awareness about this particular learning mode, and too little interest, especially from business and industry, were perceived to be the most serious barriers to the growth of work-based learning. A mix of barriers was perceived to have a *minor* or *moderate* level of impact, including faculty-related interest and knowledge about work-based learning, curriculum-related issues, and cooperation with labor and other institutional partners. Three disparate barriers (i.e., conflict with other reforms, looking at work-based learning as another name for vocational programs, and faculty battles) were perceived to have very little or no impact on the growth of work-based learning.

Work-Based Learning Policy Recommendations of Respondents

The final section of the questionnaire sought recommendations from respondents concerning either new policy or modifications of existing policy. Part Six indicated "A goal of this survey is to provide ideas for new government policies regulating WBL. To address this goal, we invite you to provide one or more recommendations for how local, state, or federal governments could encourage the growth of work-based learning programs in two-year colleges." A total of 191 individuals wrote recommendations. As expected, a few issues and concerns were repeated frequently by respondents. The following summaries are in order of the frequency of incidence.

Financial Assistance for Two-Year College Work-Based Learning

The most frequent concern centered on a belief that two-year colleges have been under-resourced for the creation and operation of work-based learning programs. Nearly 60 individuals commented about this problem. Their recommendations were for increased funding to colleges to support a variety of activities connected with work-based learning. Individuals suggested that funding should address curriculum development and faculty/staff development needs and that real change in programs would not happen to any significant degree until this happened. Several respondents supported the idea that funding should be related to costs; expensive programs should receive more than less expensive programs. The largest number of specific comments dealt with the belief that cooperative

(co-op) education should receive more support. It was argued that co-op was a proven success that needed more federal support.

A variety of comments addressed student need for assistance with the predominant thought supporting the payment of student wages during the work-based learning experience. There was a single comment warning that unpaid students would be taken advantage of as being a "cheap source of labor." Several recommendations sought more aid to students in the manner of transportation, child care, and clothing allowances.

Most of these arguments might be summarized by a call for less prescriptive funding with awards being made in the nature of "block grants" allowing two-year colleges to use the money where the need is greatest. Several individuals called for noncompetitive funding which would allow the college to count on assistance for a longer period of time. In summary, there was a very clear and strong call for increased resource assistance for colleges.

Incentives for Businesses

The second most frequent set of recommendations was for incentives to promote greater business involvement with work-based learning. Forty individuals encouraged some sort of aid to business with the greatest number suggesting tax incentives as a way to interest businesses in partnerships. Two individuals urged some sort of state or federal recognition program whereby businesses would be awarded for work-based learning participation.

There was also a recognition that businesses are generally not prepared to enter into work-based learning programs due to a general lack of knowledge about the programs and confusion concerning their role in presenting structured learning experiences in-plant. A recommendation for colleges to offer awareness and training experiences for businesses to prepare them for a work-based learning partnership was reoccuring in the respondents' comments. Finally, several individuals recommended that employer concerns about the legal liabilities of having students working at their plants be addressed with law or policy providing alternative protection for students. One additional and similar recommendation sought to reduce the "non-safety rules and regulations" to make it easier to host students. Presumably, these were personnel policies.

Education, Awareness, and Promotion Concerning Work-Based Learning

There were a dozen calls for the creation of a clear and widely accepted definition of work-based learning which would aid in the general public's understanding and acceptance of the concept. This was followed by similar requests for the dissemination of successful models of work-based learning to be available to colleges who are considering programs. Several people recommended that an unspecified organization launch a national media campaign to accomplish the increased awareness of work-based learning. Others sought a national-level work-based learning association to lead colleges in program development and promotion.

Several recommendations dealt with the larger issue of the poor image surrounding technical jobs and vocational education, suggesting that work-based learning is negatively affected by that image. Specific suggestions were for promotional and awareness programs aimed directly at both business and the parents of students. The argument seemed to be that until parents believe that work-based learning and technical education are good alternatives for their children, there will always be difficulty in convincing students to join programs. In summary, the most recommendations focused on promotion programs for businesses to convince them to enter partnerships with colleges.

Support from Stakeholders and the Need for Standards

Following the recommendations for promotion was a call for assistance from state and federal agencies in the form of creating standards/guidelines for programs. These were in addition to calls for professional associations and agencies to assist in accrediting, credentialling, and licensing work-based learning experiences to provide more credibility. The belief is that the more organizations that recognize work-based learning as legitimate the more it will gain credibility within the education and business community. It was noted, for example, that the Veterans Administration does not recognize work-based learning as an approved method of training and, therefore, does not fund it. Organized labor unions were also identified as not being very supportive of work-based learning and recommendations sought greater involvement from unions. In summary, a variety of recommendations sought greater involvement of noncollege organizations who are either stakeholders in the workforce development system or who accredit and control the system.

Blending of State and Federal Programs

Six respondents advocated more fiscal support for work-based learning from appropriate state and federal grant programs. Initiatives funded by the Job Training Partnership Act (JTPA), the Carl D. Perkins Vocational and Applied Technology Education Act, and the Tech Prep Education Act were named specifically as sources for work-based learning support. Where these efforts are isolated, respondents anticipated uncoordinated and/or competing workforce development efforts. If conceptualized in a more systematic manner, the opportunity to offer more coherent and meaningful work-based learning seems to be a viable option for more students.

To summarize, the 191 individuals who took the time to write policy change proposals primarily recommended more support for work-based learning overall. The five main issues were more resources for two-year colleges, more incentives for business to join work-based learning partnerships, increased promotion of work-based learning to the business world and to parents, and organizational and funding support from professional associations and state/federal agencies.

CONCLUSIONS AND IMPLICATIONS FOR POLICY AND PRACTICE

This study was designed to document the status of work-based learning in U.S. two-year colleges. Due to its timing just prior to passage of the federal School-To-Work Opportunities (STWO) legislation, the findings can provide a baseline from which progress on implementation of new work-based learning programs can be assessed. The primary objective of this study was to describe the state of work-based learning programs across curricula in two-year colleges according to the following:

- scope of work-based learning
- characteristics of "best" health work-based learning programs
- characteristics of "best" other work-based learning programs
- support for work-based learning
- institutional characteristics
- work-based learning policy recommendations

The study attempted a census of all two-year colleges (junior, technical, and community) in the United States as of September 1, 1993. The census design was used to give all U.S. two-year colleges the opportunity to nominate their "best" work-based learning programs and ascertain the scope of work-based learning occurring nationwide. The sampling frame for the study was obtained from three sets of American Association of Community Colleges (AACC) mailing labels totaling 1,036 two-year colleges. On September 3, 1993, mail questionnaires were sent to each of 1,036 college presidents. Following multiple follow-up procedures, a total of 505 surveys were returned as of December 31, 1993, for a response rate of 48.7%. Of these, 51 were not usable, resulting in a final dataset containing 454 cases. Utilizing these questionnaires, data was tabulated, analyzed, and reported to portray the scope and character of work-based learning occurring in the nation's two-year colleges.

First, and most importantly, results indicate that at such an early stage of implementation of school-to-work initiatives, specifically work-based learning programs, many two-year colleges were unable to specify the incidence of student involvement in work-based learning across the entire curriculum. However, data was available from the vast majority of responding institutions in the area of occupational-technical (vocational) education where an average of 18% of students were estimated to participate in work-based learning. In addition, customized or contract training enrollments, estimated by approximately one-quarter of the responding institutions, showed a majority of students (55%) involved in work-based learning. Together, these two major curriculum areas appear to provide the preponderance of work-based learning experiences for two-year college students. In other major curriculum areas such as transfer and liberal arts students, developmental education, and continuing or community education, far fewer institutions reported offering work-based learning and, where reported, student enrollments were much more modest. These findings suggest that the curricula areas that have been traditionally linked most closely with local employers have the strongest foothold in work-based learning. As two-year colleges attempt to expand such experiences to more students within career-oriented programs or across two-year college curricula, the networks and expertise already existing in these areas may prove extremely valuable.

When asked to identify the specific program areas *requiring* work-based learning, the two areas of health-care (e.g., nursing, radiologic technology, respiratory therapy) and business curriculum (e.g., office management, business administration, marketing) were

the primary program/discipline areas requiring students to participate. In fact, of the 58 program/discipline areas presented in the questionnaire, only the area of nursing and nursing-related occupations was found to require work-based learning by the majority of responding institutions. Other programs that were reported to require work-based learning by fewer institutions included child care and development; several health specialties such as radiologic technology and respiratory therapy; automotive mechanics; law enforcement; business and office management; traditional apprenticeship areas such as carpentry, bricklaying, and plumbing; hotel management; electronics; computer technology; and food production. Conspicuously absent from the list of top programs requiring work-based learning were manufacturing-related areas such as metal working, mechanical design, and tool and die making, along with high tech programs such as computer-aided design and drafting, computer integrated manufacturing, and telecommunications. The reasons for the low incidence of such programs mandating work-based learning for students is unknown. However, the authors speculate that there are many contributing factors, including the nation's past economic climate, changes in the ways manufacturing and service industries operate, competing internal priorities of two-year colleges, and a combination of these and other unknown factors. Certainly, more research is needed to fully understand the nature of mandated work-based learning across the various program areas of two-year colleges. In addition, research is needed to ascertain the scope of work-based learning that occurs on an elective basis in which colleges, employers, and students choose to create and maintain learning opportunities that formally link learning in school and in the workplace.

Two key sections of the questionnaire (Parts Two and Three) asked respondents to nominate their "best" health and nonhealth programs based on four criteria: (1) formal structure, (2) fully operational, (3) proven track record, and (4) innovative approaches. The health programs identified most often as fulfilling these criteria were the areas of nursing with 220 nominations and nursing assistant with 82 nominations. Together, these two areas accounted for approximately 76% of the nominations of health work-based learning programs. When asked to nominate nonhealth programs according to the four criteria, 322 nominations were received with the general category of business and office technology topping the list with 41 nominations. Nonhealth work-based learning programs that were nominated included automotive technology (34 nominations), engineering technologies (24 nominations), cooperative education or cooperative work experience (21 nominations), and agricultural-related occupations (20 nominations). All other categories received fewer than 20 nominations. Taken together, these 721 nominations provided a

rich database from which to learn more about the features and components of work-based learning programs that responding institutions self-selected based on the four criteria specified in the questionnaire. In and of itself, this dataset represents a wealth of information about work-based learning in the nation's educational enterprise, certainly within the nation's two-year college system.

When examining the characteristics of these nominated programs, results indicate that they were first implemented between 1961 and 1980, with nonhealth programs tending to be the newer, less mature programs. Results also indicate that the majority of health programs place students in work-based learning experiences with medium-sized firms of less than 500 employees; programs tend to use small companies (fewer than 100 employees) for student placements in work-based learning.

Interestingly, the number of students enrolled, whether in health or nonhealth programs, was similar. Health programs enrolled an average of 144 students and nonhealth programs enrolled an average of 163. However, although student enrollments for the health and nonhealth programs was similar, the level of faculty involvement differed. Health programs had a total of 14 faculty, on average—seven full-time and an equal number with part-time status. Nonhealth programs had only three full-time and four part-time faculty, on average. This is particularly interesting since the average number of hours students were reported to spend in work-based learning for health programs was 741 compared to 770 for students in nonhealth programs. When compared to health programs, nonhealth programs may be operating with a similar number of students spending more hours in the workplace and with fewer faculty. This finding raises several questions: How is quality maintained in nonhealth programs relative to health programs? Are there efficiencies to be learned from nonhealth programs that could be implemented in health programs? Without additional research regarding the quality of these programs, no conclusions can be drawn regarding these questions. Nonetheless, these findings raise issues regarding the level of faculty involvement needed to support students' work-based learning opportunities. Clearly, more research is needed to understand the quality of experiences of students related to either health or nonhealth work-based learning.

Evident from the findings were the tendencies for health and nonhealth programs to gravitate toward particular work-based learning models, thereby providing the opportunity to examine these models in greater depth. Almost all of the nominated health work-based

learning programs were identified as using the clinical experience model (97%). In contrast, nonhealth programs typically utilized the cooperative (co-op) education model (64%). About 13% of nonhealth programs also reported using the clinical experience model, and a similar percentage reported using an "other" model, often described as internships. Models such as traditional apprenticeship, school-based enterprise, and youth apprenticeship were rarely utilized.

Results from the study provided evidence of how specific components related to the STWO legislation were employed for each of the models under investigation, providing a glimpse into how work-based learning programs nominated as two-year colleges' "best" may meet this new federal law. Results show variability in the way the models addressed the 22 selected school-to-work components. Models such as traditional apprenticeship and youth apprenticeship tended to have more components such as student wages and incentives for business and labor. In contrast, the clinical-health, clinical-other, co-op, and school-based enterprise models often employed components such as individualized student training plans and job rotation more than other models. Overall, the two models of traditional and youth apprenticeship were shown to employ the STW components more thoroughly than the other models. However, the remaining five models also employed a majority of the 22 STW components under investigation. If two-year colleges are to employ work-based learning models that address the components of the new STWO legislation, it is advisable for them to seek out information about how existing work-based learning models configure particular processes and strategies. Of course, reiterating a previous recommendation, it is essential that additional research be conducted to determine the quality of programs resulting from these various components and models. To judge a particular model superior simply because it employs more STW components than others oversimplifies the complexity of implementation of STW policy. Only through additional research and evaluation will it be possible to determine the outcomes and benefits associated with any of these models.

Findings suggest two-year colleges have the primary responsibility for nearly all of the components associated with work-based learning regarding either health or nonhealth programs. Nearly every facet of health programs was reported to be the primary responsibility of the college, including selecting, instructing, mentoring, assessing, and certifying students. Except for the areas of supervising and evaluating students, components of other programs were undertaken primarily by the colleges. These results

suggest that although the learning process may take place within the workplace, it remains largely the responsibility of two-year colleges rather than employers. Employers are viewed as taking primary responsibility for providing a site for learning. In many cases, students are not even paid for the work conducted there, especially for health programs. These findings clearly portray the heavy responsibility placed upon educational institutions, in this case two-year colleges, to coordinate and deliver work-based learning programs. If more students are to participate in these types of experiences, how will colleges manage? Given evidence of declining resources coupled with findings suggesting colleges maintain primary responsibility for nearly all aspects of work-based learning, how can more students be expected to engage in such experiences? What role should employers or other organizations be asked to play to support work-based learning? At present, employers' roles appear extremely limited. Unless their role is expanded, we speculate that little expansion can or will occur with the work-based learning concept in two-year colleges.

When institutions were asked to reflect on past experiences with work-based learning, they perceived that their programs received the most support from stakeholder groups such as advisory boards, business/industry representatives, state licensing agencies, and college staff—all groups with something to gain from work-based learning. Not surprisingly, groups that could view work-based learning as a poor alternative to traditional college curricula or even as a threat to their own goals (i.e., parents, labor, four-year schools) appeared to be the least supportive of the concept, suggesting areas that need attention if the work-based learning is to be disseminated widely within the nation's two-year colleges.

In a related section of the questionnaire, respondents were asked to rate twenty barriers according to their perceived impact on the growth of work-based learning. Results indicate that too few resources (time, people, and funding); too little awareness about this particular learning mode; and too little interest, especially from business and industry, were perceived to be the most serious barriers to the growth of work-based learning. A mix of barriers was perceived to have a *minor* or *moderate* level of impact including faculty-related interest and knowledge about work-based learning, curriculum-related issues, and cooperation with labor and other institutional partners. Three disparate barriers (i.e., *conflict with other reforms*, *looking at work-based learning as another name for vocational programs*, and *faculty battles*) were perceived to have very little impact.

Findings regarding perceived barriers point to some serious areas of concern if work-based learning involving two-year colleges is to be implemented more widely. First, respondents express concern about having sufficient resources to employ work-based learning on a wider scale. Previous discussion has already pointed to institutions having growing student enrollments with a declining financial base to support them. Second, obstacles are encountered when particular stakeholder groups crucial to operating work-based learning (e.g., employers, labor, parents, and four-year colleges) lack the interest, knowledge, and/or commitment to sharing in implementation of the concept. Without the active involvement of these constituencies, it seems unlikely work-based learning programs can be successful. Finally, although not viewed as severely as previous barriers, issues within two-year colleges are also perceived to affect the growth of work-based learning. Of moderate concern to many respondents was the lack of knowledge and skills among faculty in work-based learning concepts. Combined with other curricular issues such as a lack of integrated occupational and academic education and lack of focus on careers, these obstacles present internal concerns that must be addressed if work-based learning is to be offered on a wider scale.

Finally, respondents were asked to provide recommendations for how local, state, and federal governments could develop policy to assist with the growth of work-based learning. Without an exception, the suggestions provided by respondents were supported by other results of this study. The policy recommendations called for more resources for two-year colleges; more incentives for business to join work-based learning partnerships; increased promotion of work-based learning, particularly to business, labor, and parents; clearer standards and guidelines emanating from the state and federal levels; and more support from professional associations and local, state, and federal agencies. Policymakers would fare well to heed the recommendations of these two-year college practitioners, a group of educators already experienced in delivering work-based learning programs.

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Appendix:

Aggregated Responses to the Questionnaire

PART I
SCOPE OF WORK-BASED LEARNING

This section of the questionnaire focuses on identifying the scope of work-based learning (WBL) programs being offered in your institution during the 1993 fiscal year (FY93), which represents the time period of July 1, 1992, to June 30, 1993.

By work-based learning (WBL) programs, we mean instructional programs that deliberately use the workplace as a site for student learning. WBL programs are formal, structured, and strategically organized by instructional staff, employers, or sometimes other groups to link learning in the workplace to students' college-based learning experiences. WBL programs have formal instructional plans that directly relate students' WBL activities to their career goals. These WBL experiences are usually but not always college-credit generating. Instructional programs that involve youth apprenticeships, clinical experiences, school-based enterprises, and formal registered apprenticeships are examples of the kind of WBL programs we are seeking to learn about in this study.

Q-1. What was your institution's total head count enrollment for fiscal year 1993 (FY93)? (n=430)

12,402 (mean) Total Head Count

Q-2. The table below lists major curriculum areas offered by many two-year colleges.

Column 1 **Major Curriculum Area**	*Column 2* ***Estimated*** **Curriculum Area Head Count Enrollment for FY93**	*Column 3* ***Estimated*** **Number of Students in WBL Programs in Curriculum Area for FY93**
Occupational-technical curriculum areas (e.g., health, business & office, technologies, agriculture, vocational programs) (n=419/358)	4,835	819
Transfer curriculum areas (e.g., liberal arts & sciences, mathematics, fine & applied arts, humanities) (n=370/87)	6,004	486
Developmental/basic studies (e.g., remedial courses, learning skills, human development) (n=334/32)	2,209	470
Community and continuing education (e.g., adult education, lifelong learning, extension programs) (n=383/63)	6,845	1,397
Customized or contract training in technical, academic, or managerial areas for local business & industry (n=267/117)	2,074	943
Other (please specify) (n=51/6)	2,365	629

Q-3 In the table below is a list of occupational program and academic areas that are sometimes offered by two-year colleges. For each of the programs listed below, place a check in the box if WBL activities are required for students majoring in that area. If enrollment figures are available for the program for FY93, please provide them in the designated space.

N	Program Area	Enrollment in FY93 (Mean)	N	Program Area	Enrollment in FY93 (Mean)
50	Accounting	170	13	Interior design	84
24	Agribusiness & management	77	59	Law enforcement	247
12	Architectural design & technology	72	8	Life sciences	434
64	Automotive mechanics	97	50	Marketing	82
9	Aviation & space technology	117	11	Mechanical design technology	93
13	Banking & finance	84	14	Media & graphic arts	88
53	Business administration & management	346	14	Metalworking	58
10	Biotechnology	46	16	Microcomputers	148
9	Brick, block, & stonemasonry	46	10	Natural resources & environmental sciences	83
25	Carpentry	58	262	Nursing & nursing-related occupations	344
107	Child care & development	135	29	Occupational therapy	112
11	Communications	353	56	Office management	156
21	Computer-aided design & drafting	72	5	Personnel management	54
7	Computer integrated manufacturing	34	12	Photography	82
35	Computer technology	259	39	Physical therapy	90
23	Construction	95	16	Plumbing	94
17	Corrections	128	10	Printing	94
47	Dental hygiene	62	1	Public utilities management	5
31	Education	82	8	Quality control, management & improvement	95
40	Electronics & electronics technology	110	81	Radiologic technology	80
76	Emergency medical technology	122	15	Real estate	54
30	Fashion merchandising	50	77	Respiratory therapy	80
23	Firefighting	181	18	Retailing	57
34	Food production	115	52	Social work/social services	169
7	Forestry	43	2	Statistical process control	22
19	Heating, air conditioning, & refrigerator	53	7	Telecommunications technology	48
15	Humanities	550	9	Tool & die making	117
19	Horticulture	79	28	Welding, brazing, & soldering	50
43	Hotel/motel management	74	114	Other:	188
25	Information processing	241			

PART II
HEALTH WORK-BASED LEARNING PROGRAM

Work-based learning (WBL) often takes place in the health-related curriculum (e.g., nursing, radiology, medical lab, dental) of two-year colleges. This section presents a series of questions that will provide an in-depth look at one of your college's health-related WBL programs. Considering all your college's health programs that *require* WBL, which one *best* meets the following criteria? (This is not necessarily your largest program.)

Formal Structure	The program has formal instructional plans that deliberately link workplace learning to students' college-based learning experiences.
Fully Operational	Your college faculty, local employers, and other supporting organizations are formally committed to carrying out these WBL experiences for students.
Proven Track Record	The program has successfully prepared students to reach their intended career and academic goals; evaluation data exists to support claims of program effectiveness.
Innovative Approaches	The program utilizes new and creative strategies in curriculum and instruction; program administration; and partnerships between education, business, labor, and other organizations.

If no health WBL program meets these criteria, please skip to Part III.

Q-4. Write the name of the health WBL program you selected in the blank below.

See text HEALTH WBL PROGRAM

Q-5. Please describe the qualities of this program that led you to select it as the best WBL program offered in your college's health curriculum.

See text

Q-6. In what year was this health WBL program first implemented? (n=377)

Prior to 1960	4.6%
1961 to 1969	25.8%
1970 to 1979	31.1%
1980 to 1989	16.3%
1990 to Present	5.3%

Q-7. How many students were enrolled in this WBL program in FY93? (n=395)

153 (mean) Enrollment In FY93

Q-8. At completion of this health WBL program, approximately how many hours (on average) would a student have spent in the workplace? (n=351)

800 (mean) Hours In Workplace

Q-9. Approximately how many full-time and part-time faculty were directly involved with this health WBL program during FY93?

7 (mean) Full-Time Faculty In FY93 (n=391)

8 (mean) Part-Time Faculty In FY93 (n=369)

Q-10. What percentage of the health-care providers/employers that participated in this health WBL program during FY93 were small, medium-sized, or large? *(Please provide your best estimate.)*

Health-Care Provider/Employer Size	Percentage
Small companies (fewer than 100 employees) (n=378)	27.6% (mean)
Medium-sized companies (100-500 employees) (n=388)	43.8% (mean)
Large companies (over 500 employees) (n=383)	29.2% (mean)

Q-11. Was this health WBL program formally part of a Tech Prep grant funded with federal vocational education funds during FY93? (n=386)

8.5% YES
90.7% NO

Q-12. Which one of the following general models best represents your selected health WBL program? (n=393)

97.2% *Clinical experiences* – worksite learning occurring in association with preparation for a credential in a professional field such as healthcare, law, or education

1.8% *Cooperative education* – a combination of vocational coursework and work experience where students earn credit working in jobs secured through written cooperative agreements

0.0% *School-based enterprise* - small businesses created and operated by students where the college implements a real, economically viable business venture

0.0% *Traditional formal apprenticeship* - registered with the Bureau of Apprenticeship Training

0.0% *Youth Apprenticeship* – an articulated curriculum linking secondary and postsecondary education that incorporates employer-paid work experience and guided worksite learning. Completers receive recognized credentials of occupational and academic skill mastery.

1.0% *Other*

Q-13. Which of the following components were a formal part of your selected health WBL program during FY93?

Component of WBL Program		Formal Part of Program Yes	No	NA
1. Coordinated classroom & workplace learning	(n=399)	99.5%	0.3%	0.3%
2. Integrated occupational-technical & academic instruction	(n=399)	91.7%	6.0%	2.3%
3. Entrepreneurship or small business training for students	(n=399)	2.5%	60.7%	36.8%
4. Individualized student training plans	(n=399)	49.6%	36.8%	13.5%
5. Rotation of students through different jobs	(n=398)	83.2%	11.6%	5.3%
6. Wages or stipends for students participating in WBL	(n=399)	4.3%	79.4%	16.3%
7. Periodic evaluation of student progress	(n=399)	99.7%	0.3%	0.0%
8. Formal program of career awareness, orientation, & guidance	(n=399)	86.5%	9.3%	4.3%
9. Formal assessment, certification of skills based on ind. standards	(n=399)	94.0%	4.0%	2.0%
10. Recognized credentials of academic occupational mastery for completers	(n=398)	88.4%	5.0%	6.5%
11. Recruitment of targeted student groups	(n=399)	48.1%	38.8%	13.0%
12. Preparatory or remedial services to enable students to enter WBL	(n=399)	75.9%	15.5%	8.5%
13. Transitional services for special needs populations/at-risk students	(n=399)	65.4%	23.6%	11.0%
14. Job placement for WBL graduates	(n=399)	56.4%	35.1%	8.5%
15. Guaranteed hiring of qualified graduates by participating employers	(n=398)	11.8%	78.1%	10.1%
16. Formal articulation agreements with secondary school WBL programs	(n=399)	19.8%	67.7%	12.5%
17. Funded Tech Prep program	(n=399)	11.3%	77.4%	11.3%
18. Mentors or coaches for students in the workplace	(n=399)	65.7%	28.6%	5.8%
19. Training and credentialling of workplace mentors or coaches	(n=399)	41.6%	46.9%	11.5%
20. Regular consultation between workplace mentors & college faculty	(n=399)	75.2%	16.0%	8.8%
21. Inservice of college faculty & staff in WBL concepts	(n=398)	45.0%	43.7%	11.3%
22. Training of college faculty & staff conducted by business	(n=399)	30.1%	55.1%	14.8%
23. Training of college faculty & staff in the workplace	(n=398)	52.0%	34.7%	13.3%
24. Incentives to increase WBL participation by businesses, trade organizations, unions, & community-based organizations	(n=398)	15.1%	63.3%	21.6%
25. Workplace (employer-based) training centers used for WBL	(n=399)	40.9%	42.9%	16.3%
26. Formal contracts or co-op agreements w/institutional partners	(n=399)	94.7%	3.5%	1.8%
27. Donations of funding & equipment by businesses	(n=399)	58.4%	32.8%	8.8%
28. Governing/advisory board composed of institutional partners	(n=399)	85.7%	11.3%	3.0%
29. Marketing and/or promotion of WBL programs	(n=398)	57.3%	28.9%	13.8%

Q-14. This question focuses on identifying the location of *primary* responsibility for many of the components of WBL programs identified in the previous question. Use the following codes for the organization:

College has primary responsibility for the component.
Workplace (e.g., employers, labor) has primary responsibility for the component.
Some *other agency* (e.g., community-based agency) has primary responsibility for the component.
Formal/shared contract or agreement between the college and any other (e.g., employers, labor, community-based organizations) defines joint responsibility for the component.
The component *does not apply* (*NA*) to your WBL program.

Component		College	Work-Place	Other Agency	Formal/ Shared	NA
1. Delivery of instruction is primarily the responsibility of	(n=399)	94.2%	0.5%	0.0%	5.0%	0.3%
2. Curriculum development is primarily the responsibility of	(n=399)	93.0%	0.0%	0.8%	6.0%	0.3%
3. Student selection is primarily the responsibility of	(n=399)	94.0%	0.8%	0.0%	4.3%	1.0%
4. WBL experiences take place primarily at	(n=398)	4.0%	74.6%	4.0%	15.6%	1.8%
5. Supervision of students is primarily the responsibility of	(n=399)	72.9%	5.3%	0.0%	21.1%	0.8%
6. Evaluation of students is primarily the responsibility of	(n=399)	72.7%	2.3%	0.0%	24.6%	0.5%
7. Organizing help for students having difficulty in WBL is primarily the responsibility of	(n=399)	87.0%	1.0%	0.0%	10.8%	1.3%
8. Student wage rates are primarily determined by	(n=399)	0.3%	8.8%	1.0%	0.8%	89.2%
9. Assessment & certification of student skill mastery at program completion are primarily the responsibility of	(n=398)	76.6%	0.5%	7.0%	14.8%	1.0%
10. Awarding of recognized credentials of mastery is primarily the responsibility of	(n=399)	68.9%	0.3%	22.1%	3.0%	5.8%
11. Selection & assignment of workplace mentors or coaches are primarily the responsibility of	(n=398)	41.2%	13.6%	0.0%	22.6%	22.6%
12. Training & credentialling of mentors or coaches are primarily the responsibility of	(n=398)	38.9%	13.3%	2.3%	14.1%	31.4%
13. Final negotiation of contractual agreements among institutional partners is primarily the responsibility of	(n=399)	50.9%	0.0%	0.0%	46.1%	3.0%
14. Instructor/student ratios are primarily determined by	(n=399)	53.6%	4.0%	26.8%	14.0%	1.5%
15. Length of training & related instruction are primarily determined by	(n=399)	68.9%	0.0%	18.8%	9.5%	2.8%
16. Placement of students in permanent full-time jobs is primarily the responsibility of	(n=398)	31.2%	12.1%	3.3%	7.5%	46.0%
17. Transporting students is primarily the responsibility of	(n=398)	7.8%	0.3%	0.5%	1.0%	90.5%
18. Student work permits are primarily the responsibility of	(n=398)	8.5%	1.3%	4.3%	1.0%	84.9%
19. Student insurance or liability is primarily the responsibility of	(n=399)	75.9%	1.8%	1.0%	4.8%	16.5%
20. Compliance with state or federal child labor laws is primarily the responsibility of	(n=399)	29.3%	5.3%	1.3%	11.3%	52.9%
21. Compliance with state & federal laws governing health & safety is primarily the responsibility of	(n=399)	33.8%	8.0%	0.8%	54.1%	3.3%

PART III
OTHER WORK-BASED LEARNING PROGRAM

Besides the health curriculum, other areas of two-year college curriculum sometimes offer WBL programs. This section presents a series of questions that will provide an in-depth look at one of your college's WBL programs in a curriculum area other than health. What one WBL program outside of health *best* meets the following criteria? (Again, this is not necessarily your largest program.)

Formal Structure	The program has formal instructional plans that deliberately link workplace learning to students' college-based learning experiences.
Fully Operational	Your college faculty, local employers, and other supporting organizations are formally involved in carrying out these WBL experiences for students.
Proven Track Record	The program has successfully prepared students to reach their intended career and academic goals; evaluation data exists to support claims of program effectiveness.
Innovative Approaches	The program utilizes new and creative strategies in curriculum and instruction; program administration; and partnerships between education, business, labor, and other organizations.

If no other WBL program meets these criteria, please skip to Part IV.

Q-15. Write the name of the nonhealth WBL program you selected in the blank below.

See text Nonhealth WBL Program

Please answer questions 16-25 for this other WBL program.

Q-16. Please describe the qualities of this program that led you to select it as the best WBL program offered by your college in a curriculum area other than health. *Please attach copies of any written materials (e.g., contracts, training agreements, evaluations) that describe how this WBL program operates.*

See text

Q-17. In what year was this other WBL program first implemented? (n=312)

Prior to 1960	5.1%
1961 to 1969	6.4%
1970 to 1979	21.4%
1980 to 1989	23.8%
1990 to Present	12.1%

Q-18. How many students were enrolled in this WBL program in FY93? (n=319)

159 (mean) Enrollment in FY93

Q-19. At completion of this other WBL program, approximately how many hours (on average) would a student have spent in the workplace? (n=260)

770 (mean) Hours in Workplace

Q-20. Approximately how many full-time and part-time faculty were directly involved with this other WBL program during FY93?

3 (mean) Full-Time Faculty in FY93 (n=309)

4 (mean) Part-Time Faculty in FY93 (n=274)

Q-21. What percentage of the employers were small, medium-sized, and large companies that participated in this selected other WBL program during FY93?

Employer Company Size	Percentage (mean)
Small companies (fewer than 100 employees) (n=314)	63.4%
Medium-sized companies (100-500 employees) (n=309)	19.0%
Large companies (over 500 employees) (n=304)	14.7%

Q-22. Was this other WBL program formally part of a Tech Prep grant funded with federal vocational education funds during FY93? (n=315)

9.2% Yes
88.9% No

Q-23. Which one of the following general models best represents your selected other WBL program? (n=316)

13.0% *Clinical experiences* – worksite learning occurring in association with preparation for a credential in a professional field such as healthcare, law, or education

63.6% *Cooperative education* – a combination of vocational coursework and work experience where students earn credit working in jobs secured through written cooperative agreements

2.2% *School-based enterprise* - small businesses created and operated by students where the college implements a real, economically viable business venture

6.6% *Traditional formal apprenticeship* registered with the Bureau of Apprenticeship Training

1.9% *Youth Apprenticeship* – an articulated curriculum linking secondary and postsecondary education that incorporates employer-paid work experience and guided worksite learning. Completers receive recognized credentials of occupational and academic skill mastery.

12.7% *Other*

Q-24. Which of the following components were a formal part of your selected nonhealth WBL program during FY93?

Component of WBL Program		Formal Part of Program? Yes	No	NA
1. Coordinated classroom & workplace learning	(n=322)	94.4%	3.4%	2.2%
2. Integrated occupational-technical & academic instruction	(n=322)	85.4%	9.6%	5.0%
3. Entrepreneurship or small business training for students	(n=322)	33.5%	46.6%	19.9%
4. Individualized student training plans	(n=322)	73.3%	21.1%	5.6%
5. Rotation of students through different jobs	(n=322)	56.2%	34.2%	9.6%
6. Wages or stipends for students participating in WBL	(n=322)	61.8%	27.3%	10.9%
7. Periodic evaluation of student progress	(n=322)	99.1%	0.0%	0.9%
8. Formal program of career awareness, orientation, & guidance	(n=322)	79.2%	14.0%	6.8%
9. Formal assessment & certification of skills based on industry standards	(n=322)	68.9%	22.7%	8.4%
10. Recognized credentials of occupational & academic mastery for completers	(n=321)	69.8%	20.6%	9.7%
11. Recruitment of targeted student groups	(n=322)	59.3%	30.1%	10.6%
12. Preparatory or remedial services to enable students to *enter* WBL	(n=322)	74.5%	18.0%	7.5%
13. Transitional services for special needs populations/at-risk students	(n=321)	57.6%	29.0%	13.4%
14. Job placement for WBL graduates	(n=322)	68.9%	20.5%	10.6%
15. Guaranteed hiring of qualified graduates by participating employers	(n=321)	13.4%	73.5%	13.1%
16. Formal articulation agreements with sec. WBL programs	(n=322)	27.3%	55.9%	16.8%
17. Funded Tech Prep program	(n=322)	15.2%	72.0%	12.7%
18. Mentors or coaches for students in the workplace	(n=322)	71.1%	23.9%	5.0%
19. Training & credentialling of workplace mentors or coaches	(n=322)	26.7%	59.9%	13.4%
20. Regular consultation between workplace mentors & college faculty	(n=322)	77.6%	16.8%	5.6%
21. Inservice of college faculty & staff in WBL concepts	(n=322)	39.1%	53.7%	7.1%
22. Training of college faculty & staff conducted by business	(n=322)	31.4%	59.9%	8.7%
23. Training of college faculty & staff in the workplace	(n=321)	36.4%	55.8%	7.8%
24. Incentives to increase WBL participation by businesses, trade organizations, unions, community-based organizations, or others	(n=322)	28.0%	55.8%	16.2%
25. Workplace (employer-based) training centers used for WBL	(n=322)	37.9%	50.9%	11.2%
26. Formal contracts or cooperative agreements with institutional partners	(n=321)	69.8%	25.5%	4.7%
27. Donations of funding & equipment by businesses	(n=321)	53.6%	39.9%	6.5%
28. Formal governing/advisory board composed of institutional partners	(n=320)	81.9%	15.0%	3.1%
29. Marketing and/or promotion of WBL programs	(n=321)	71.7%	21.5%	6.9%

Q-25. This question focuses on identifying the location of *primary* responsibility for many of the components of WBL programs identified in the previous question (Q-24). For each component listed below, indicate which type of organization has primary responsibility for your selected WBL program. Use the following codes for the organization:

College has primary responsibility for the component.
Workplace (e.g., employers, labor) has primary responsibility for the component.
Some *other agency* (e.g., community-based agency) has primary responsibility for the component.
Formal/shared contract or agreement between the college and any other organizations (e.g., employers, labor, community-based organizations) defines joint responsibility for the component.
The component *does not apply (NA)* to your WBL program.

Component		College	Work-Place	Other Agency	Formal Shared	NA
1. Delivery of instruction is primarily the responsibility of	(n=321)	82.9%	3.1%	0.3%	12.8%	0.9%
2. Curriculum development is primarily the responsibility of	(n=321)	80.1%	2.2%	0.6%	15.9%	1.2%
3. Student selection is primarily the responsibility of	(n=321)	60.7%	14.3%	1.9%	19.9%	3.1%
4. WBL experiences take place primarily at	(n=322)	3.1%	81.7%	1.2%	12.7%	1.2%
5. Supervision of students is primarily the responsibility of	(n=322)	25.8%	25.5%	1.6%	45.7%	1.6%
6. Evaluation of students is primarily the responsibility of	(n=321)	33.0%	10.6%	0.3%	54.5%	1.6%
7. Organizing help for students with difficulty in WBL is primarily the responsibility of	(n=322)	70.5%	3.1%	1.6%	22.4%	2.5%
8. Determination of student wage rates is primarily the responsibility of	(n=322)	0.9%	61.5%	3.4%	5.0%	29.2%
9. Assessment & certification of student skill mastery at program completion are primarily the responsibility of	(n=322)	51.9%	7.8%	3.1%	29.8%	7.5%
10. Awarding of recognized credentials of mastery is primarily the responsibility of	(n=322)	64.0%	3.1%	6.5%	11.2%	15.2%
11. Selection & assignment of workplace mentors or coaches are primarily the responsibility of	(n=322)	25.5%	36.0%	2.2%	18.6%	17.7%
12 Training & credentialling of mentors or coaches are primarily the responsibility of	(n=322)	23.0%	25.2%	4.0%	10.2%	37.6%
13. Final negotiation of contractual agreements among institutional partners is primarily the responsibility of	(n=322)	41.0%	0.9%	1.2%	36.6%	20.2%
14. Instructor/student ratios is primarily determined by	(n=322)	76.7%	5.0%	3.1%	10.2%	5.0%
15. Length of training & related instruction primarily determined by	(n=32[illegible]	74.5%	1.9%	6.2%	16.5%	0.9%
16. Placement of students in permanent full-time jobs is primarily the responsibility of	(n=322)	36.0%	14.3%	4.7%	13.0%	32.0%
17. Transporting students is primarily the responsibility of	(n=321)	3.4%	1.9%	2.8%	1.9%	90.0%
18. Student work permits are primarily the responsibility of	(n=322)	7.5%	6.2%	2.2%	1.2%	82.9%
19. Student insurance or liability is primarily the responsibility of	(n=321)	29.6%	24.6%	2.5%	9.0%	34.3%
20. Compliance with state or federal child labor laws is primarily the responsibility of	(n=322)	15.5%	25.2%	2.8%	10.2%	46.3%
21. Compliance with state & federal laws governing health and safety is primarily the responsibility of	(n=321)	17.1%	43.6%	2.2%	30.5%	6.5%

PART IV
SUPPORT FOR WORK-BASED LEARNING

Q-26. What barriers could slow the growth of WBL in your college? For each barrier listed below, indicate the level of impact it has on further development of WBL in your college.

Barrier		Impact on Growth of WBL: None	Very Minor	Minor	Moderate	Major	Very Major
Lack of general awareness about WBL	(n=447)	12.5%	11.2%	25.7%	34.9%	12.8%	2.9%
Lack of interest in WBL	(n=447)	11.9%	13.9%	27.1%	30.4%	13.6%	3.1%
Lack of staff, time, & money dedicated to WBL	(n=448)	7.5%	3.3%	9.7%	23.8%	37.2%	17.%
Battles between faculty groups concerning WBL	(n=447)	34.6%	19.6%	24.4%	12.3%	5.5%	2.0%
Lack of cooperation among institutional partners	(n=447)	23.5%	23.5%	27.1%	14.1%	7.6%	4.3%
Negative attitudes toward occupational (vocational) education	(n=448)	20.9%	18.9%	20.9%	21.6%	13.0%	3.3%
Lack of focus on integrated occupational & academic education	(n=447)	18.7%	15.4%	20.5%	29.3%	11.9%	2.6%
Conflict with other curriculum reform movements	(n=447)	25.1%	18.7%	28.2%	17.6%	6.8%	2.0%
Looking at WBL as another name for traditional occupational (vocational) programs	(n=447)	28.6%	17.8%	22.0%	21.4%	6.8%	1.8%
Lack of knowledge & skills among faculty in WBL	(n=448)	20.7%	16.1%	21.8%	24.2%	13.9%	2.0%
Lack of inservice available for personnel associated with WBL	(n=448)	17.0%	15.0%	21.4%	26.4%	15.9%	3.1%
Too little time in curriculum for students to participate in WBL	(n=448)	15.2%	8.8%	15.0%	25.6%	25.1%	9.0%
Lack of formal public policy to support WBL	(n=448)	19.8%	10.8%	16.7%	25.8%	18.5%	7.0%
Too little funding for WBL	(n=448)	10.1%	6.2%	9.5%	19.2%	34.6%	19.%
Lack of authority of local personnel to make changes needed to implement WBL	(n=447)	22.5%	17.4%	22.9%	18.9%	11.9%	4.8%
Lack of interest from business and industry	(n=448)	16.1%	15.0%	23.4%	24.1%	13.4%	8.0%
Lack of active involvement by business and industry	(n=448)	15.2%	14.7%	19.9%	26.3%	15.8%	8.0%
Lack of cooperation by labor groups	(n=447)	29.5%	21.0%	20.6%	14.5%	7.8%	6.5%
Lack of career orientation for students prior to their entering college	(n=448)	13.2%	11.8%	20.3%	27.0%	20.5%	7.1%
Lack of focus on careers during college study	(n=446)	16.4%	16.8%	22.0%	27.4%	13.9%	3.6%

Q-27. What level of support does this WBL program currently receive from the following groups?

Group		Level of Support				
		Poor	Fair	Good	Excellent	NA
College faculty	(n=447)	3.6%	15.2%	37.6%	36.5%	7.2%
College counselors	(n=448)	4.0%	17.4%	35.9%	33.0%	9.6%
College administrators	(n=448)	1.6%	10.5%	33.3%	47.5%	7.1%
College trustees	(n=448)	2.9%	8.8%	30.4%	33.0%	23.6%
College students	(n=448)	2.0%	12.3%	42.6%	33.7%	9.4%
Local advisory committees/boards	(n=448)	0.7%	8.1%	31.1%	49.8%	9.0%
Parents	(n=446)	4.2%	10.1%	21.1%	15.9%	46.9%
Business/industry representatives	(n=448)	1.8%	12.1%	39.6%	36.8%	8.4%
Labor union representatives	(n=448)	4.8%	17.4%	15.9%	7.9%	52.6%
Community-based organizations	(n=447)	2.6%	13.4%	33.7%	18.7%	30.0%
State education agencies	(n=448)	3.5%	14.1%	32.4%	32.4%	16.3%
State licensing agencies	(n=448)	2.9%	7.5%	26.7%	31.9%	29.7%
Four-year colleges or universities	(n=448)	20.7%	19.2%	15.6%	7.0%	36.1%
Professional associations or organizations	(n=446)	3.3%	9.7%	33.9%	26.9%	24.4%

PART V
INSTITUTIONAL CHARACTERISTICS

Q-28. What was your college's FTE enrollment for FY93? (n=417)

5,307 (mean) FTE Enrollment

Q-29. Over the past two fiscal years, the FTE enrollment at your college generally has (n=412)

56.8% Increased by more than 2% annually
37.1% Remained stable (i.e., the increase or decrease did not exceed 2%)
6.1% Decreased by more than 2% annually

Q-30. How many full-time faculty were employed by your college in FY93? (n=426)

136 (mean) Full-Time Faculty

Q-31. Approximately how many part-time faculty were employed by your college in the fall term of 1992? (n=425)

192 (mean) Part-Time Faculty in Fall 1992

Q-32 Two-year colleges provide three basic types of education: (1) transfer or college parallel; (2) occupational, technical, or career (including commercial and industrial training); and (3) adult, continuing, or basic education. *In the table below, please estimate the percentage of students enrolled in each type of education your college offers.*

Type of Education	Percentage
Transfer or college parallel education (n=415)	36.7% (mean)
Occupational, technical, or career education (n=415)	41.3% (mean)
Adult, continuing, or basic education (n=411)	21.8% (mean)

Q-33. Over the past two years, financial resources to support your college have generally been (n=427)

19.7% Increasing
38.2% Stable
42.2% Decreasing

Q-34. How would you characterize your college community environment? *(Circle the one best response.)* (n=419)

51.6% Rural or small town
28.2% Suburban
20.3% Urban

PART VI
WBL POLICY RECOMMENDATIONS

A goal of this survey is to provide ideas for new government policies regarding WBL. To address this goal, we invite you to provide one or more recommendations for how local, state, and federal governments could encourage the growth of WBL programs in two-year colleges.

See text

Use this space to write any other general comments about WBL.

Please provide the following information so that, if necessary, we may follow up with you about information reported in this survey:

Name: _____

Job Title: _____

Work Address: _____

_____

_____

Phone Number: _____ FAX Number: _____

Indicate the amount of time required to complete this survey: 157 minutes (mean)